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FASCIA LATA SUTURE IN HERNIA REPAIR

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A large number of articles on hernia have appeared in recent surgical literature, covering practically every phase of the condition known to modern surgery.

When one reviews this mass of literature, he notes three striking facts, viz; the exceedingly high percentage of recurrences; the disagreement as to the cause of hernia; and one new operation which promises to reduce our startlingly high rate of recurrences. Three representative series of cases give the percentage of recurrence as follows:

Davis[1]—	9	percent
Erdman[2]—	7.5	"
Taylor[3]—	10.9	"

These three writers have studied the situation in such a manner as to lend greater weight to their statements than is due those of some others who report a lower percentage of recurrences. Coley's[4] low percentage is very easily explained by the fact that the greater number of his cases are children. He has the lowest percentage of recurrences and still adheres rigidly to the original Bassini method of herniotomy.

There have been many different variations of the Bassini operation offered, together with many improvements. Finally, six outstanding surgeons boldly declared that the removal of the sac was the main essential in hernia operation. With all of these confusing statements and articles, elaborate illustrations and methods, it is a great relief to find, at last, a definite rational and apparently efficient method of reducing hernia recurrences. Hull[5], Salzer[6], Pitzman[7], Lameris[8], and Seelig and Chouke[9], obtain very excellent results by removal of the sac as the main feature of their operation, but none of the procedures so far adopted give any promise or assurance of anything like the brilliant results obtained by Gallie and LeMesurier[10]. It is their method of dealing with hernia that I intend to discuss in this article.

As to the cause of hernia, there are so many disagreements among equally competent observers that one would be very rash indeed to offer any opinion in regard to the preformed or postformed sac, etc. Sir Arthur Keith[11] points out the importance of the internal oblique function, and most authors apparently agree with his opinion. The preformed sac theory is somewhat weakened by the fact that most people with preformed sacs never acquire hernia. Murphy[12] points out that thirty five percent of infants have potential sacs; Eccles[13] found twenty-three percent in middle aged cadavers; and Sir Arthur Keith[11] reports twelve percent in the very aged. These authors do not agree with Russell[14], who adheres absolutely to the preformed sac theory which, of course, is accepted by practically all industrial surgeons. Berger[15] gives some very interesting statistics. He says that one person in sixteen will acquire hernia. He also asks the very pertinent question, "Why do not all potentially ruptured acquire hernia?" Musculature plays a great part in these cases. A weak abdominal wall, a protruding abdomen, visceroptosis, etc., should be contraindicative to certain types of employment, as these people are potential hernia subjects, and, if put in any position requiring strain, are likely to develop hernia. The lower fibers of the internal oblique are very important and if they are weak, absent or damaged by suture, the result is likely to be unsatisfactory. The preserva-

tion of this muscle without damage probably explains, to a great extent, the success of the operators who merely remove the hernial sac.

In regard to operating for double hernia, Hughson[10] says that sixteen percent of hernia cases require operation on the other side. This would indicate that we should pay more attention to the condition of the ring and abdominal wall on the opposite side. With regard to double hernia, we must take into consideration the fact that a great number of herniotomists still perform these operations under general anesthesia. Hubbard[11] feels that pulmonary complications are more frequent in double herniotomy operations owing to the prolonged anesthetic. This brings us to the important consideration of the type of anesthesia to use in herniotomy.

I have failed to find any leading surgeon who is willing to dispute the fact that local anesthesia gives the best results in herniotomy. Even the general practitioner, who occasionally operates, should certainly be competent to perform all of his herniotomies without the use of a general anesthetic. If the surgeon's technic is such that local anesthesia is beyond his ability, the next best procedure, of course, is nitrous oxide or ethylene.

The procedure advocated by Edmund Andrews[9], of utilizing the endo-abdominal fascia and closing the wound by using only white fascia for its repair, is a very valuable contribution, and is one that I have added to the technic of Gallie and LeMesurier[8], with what I believe to be definite improvement. However, their method, according to statistics they have published, already seems to be perfect, as they have had no recurrences and their cases are made up of the worst type of hernias.

Seelig and Chouke[6] demonstrated that attaching fascia to muscle, in their estimation, was useless, as muscle and fascia would not adhere. Koontz[7] in a recent article explains the reason for their failure. This reason is very important to all herniotomists, and consists in the necessity of clearing away the areolar tissue of fascia that is used in hernia repair. After the areolar tissue is carefully cleared away fascia will adhere to muscle in exactly the same way that a scar is formed following an infection. This was illustrated in the war wounds, where we had so many adherent scars.

I first used fascia lata as suture material in animals upon which I produced peritonitis, for the purpose of treating it, while making a study of the treatment of infected wounds. I found that a dog's abdomen could be opened, the peritoneum infected and the abdomen kept closed by strips of fascia used to sew the wound. These strips of fascia would hold in the presence of infection for many weeks and, if the animal survived the peritonitis, would close; when the animal was sacrificed to study the effect produced, these strips would be found still intact. At that time no practical significance was attached to this observation, but, upon the publication of Gallie and LeMesurier's[8] clinical observations on fascia lata and hernia in 1923 and 1924, recalling my previous experience, I immediately decided that these two surgeons had made the second great step forward, after Bassini, in the treatment of hernia. My clinical experience with this operation is identical with theirs and bears out their conclusions.

These authors conclude that six types of hernia should always be subjected to treatment by this method: "(1) direct inguinal hernia; (2) oblique inguinal hernia in patients at or beyond middle age, particularly where the canal has lost its obliquity and where the abdomen is becoming pendulous; (3) femoral hernia, in which the suture is used to close the entrance of the femoral ring through an inguinal incision: (4) all forms of recurred hernia; (5) all ventral hernias in which there is any doubt in the surgeon's mind as to the permanence of closure by the ordinary methods, and (6) ventral hernia, in which closure can be obtained only with disquieting increase of intra-abdominal pressure."

Some authors give the percentage of recurrence in these hernias as high as thirty percent. It must be very common, for it is a situation that gives the thoughtful and rational surgeon much concern. This method of closure in herniotomies adds nothing to the danger of the operation, nor to the discomfort of the patient. The patients with other types of hernia, as well as the six mentioned above, have the right to the benefit of this technic if it is going to guarantee them against recurrences. The objection raised by many surgeons that the operation requires too much time is one that should not be mentioned, as the practice of surgery is so important that no individual's time should be considered when the welfare of the patient is concerned. Another objection raised is that the length of time the patient is under the anesthetic increases the hazard. As I have said before in this article, the patient should not be put under a general anesthetic. This

operation, in all cases, should be performed entirely under local anesthesia unless it is done on a child under twelve years of age; and many children make ideal subjects for local anesthesia. I have performed appendectomies, under local anesthesia, on chil-

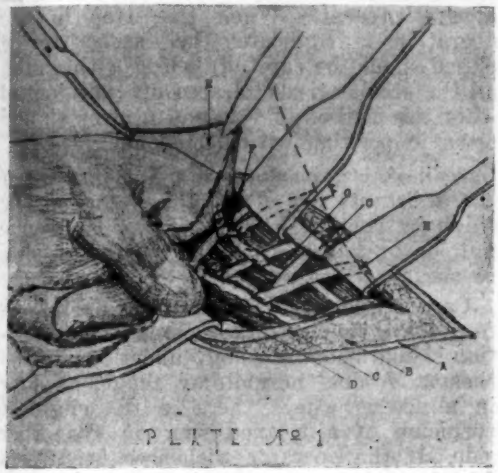

PLATE NO. 1

A—Skin.
B—Subcutaneous fat.
C.—Reflected external oblique fascia.
D—Cord.
E—Hernial sac.
F—Knot fastening the fascia lata suture after the four stitches around Poupart's ligament and through the rectus sheath, passing beneath the internal oblique aponeurosis, were made.
G—Internal oblique.
H—Sheath of the rectus. Represented by dotted line.

dren under eight years of age and found them excellent patients.

When fascia lata is removed from the thigh, and used as suture material, it constitutes an auto transplant and will live as long as the patient lives. It will acquire a blood supply and become a tendinous band, exactly as normal tendons in other parts of the body. Fascia lata is nothing but flattened tendon, and tendon transplant is a well known and successful operation. The fascias of the inguinal region or other regions of hernia, become thickened, relax, give way, and a preformed sac aids in the development of hernia, or else a sac is formed, according to the teaching you accept: there is sufficient proof for either theory. Therefore, if the principal tendinous structures are damaged, the next step is to repair them. In inguinal hernia, we often find the conjoined tendon absent. We find the internal oblique represented by only a few fibers. This brings into play the modification advocated by Edmund Andrews".

TECHNIC OF THE OPERATION

The right or left thigh, depending on the site of hernia, is treated by whatever method is preferred in preparation of the abdomen. In other words, the adbominal and inguinal preparation is extended down the thigh to the knee. Local anesthesia is used throughout the entire operation, and an automatic injector is almost essential for the speedy and easy performance of this operation under local anesthesia. The skin and subcutaneous tissues are injected from a point just below, and posterior to, the great trochanter for about twelve inches. An incision is made down to the fascia lata, which is exposed. The needle is then carefully put beneath the fascia lata, which is anesthetized. As these structures are quite sensitive, they must be carefully anesthetized before the operation proceeds. If the operator wishes, this can all be done at one injection and, for the experienced, this is an easy matter as it involves the same principle as going through the abdominal wall.

Two or three strips one-fourth inch wide are then isolated by making a puncture and taking a pair of straight scissors and rip-

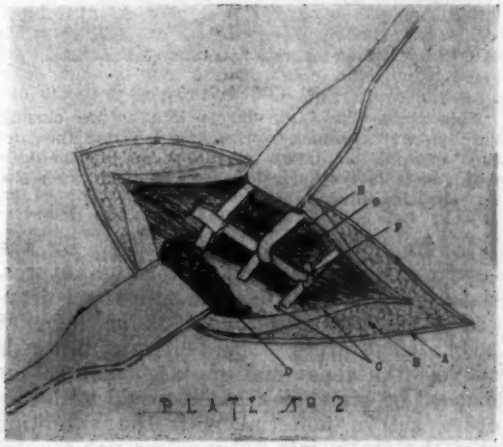

PLATE NO. 2

A—Skin.
B—Subcutaneous fat.
C—Reflected external oblique fascia.
D—Cord.
H—Sheath of the rectus now drawn down and visible.
G—Internal oblique.
F—Second suture after the anchoring suture beneath the extreme lower end of Poupart's ligament and the sheath of the rectus had been drawn through the aponeurosis. The first stitch is not visible, only the three upper sutures nearest to the cord. The cord is seen at D displaced downward.

ping down the fascia for about twelve to fourteen inches, or as far as you can go. A piece of linen is then tied around each end of these strips at a point about one-fourth inch from where they are going to be cut loose. The assistant then proceeds to close the gap in the fascia while the operator attacks the hernia. The hernial field is exposed and the sac removed, or whatever operative procedure is necessary, up to the point where the suture material is required. The assistant, by this time, has closed the rent in the fascia lata, which is done before the sutures are removed, by

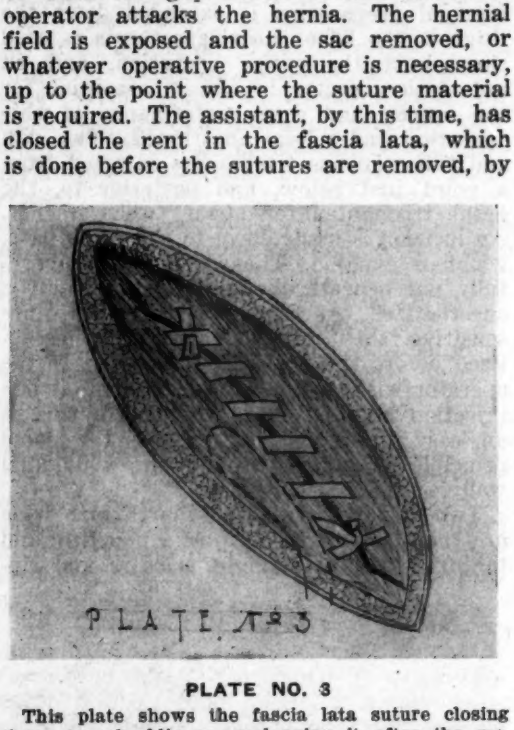

PLATE NO. 3

This plate shows the fascia lata suture closing the external oblique, overlapping it after the method of Andrews. This closure need not be done with fascia lata suture, but may be done with No. 1 twenty-day chromic gut.

retracting them out of the way. By the time the operator is ready for the sutures, the assistant has cut them away and dropped them into a bowl of saline kept at body temperature. The surgeon proceeds to close the abdominal gap according to the method of his choice, as he would with any other suture material with the exception that the fascia lata suture does not require a lock stitch, as in the original technic of Gallie and LeMesurier". However, I use the lock stitch, pull it taut, and then allow it to relax. No tension should be present on these sutures when the operation is complete. I prefer to introduce the modification of Edmund Andrews", running the point of the needle beneath Poupart's ligament, through the peritoneum and grasping the endo-abdominal fascia; and in cases where the conjoined tendon is weak or absent, bringing it through the sheath of the rectus. The operation is continued in this manner without any damage to muscle fibers, and, when complete, presents a very firm wall of living tissue, tendinous in character, that will not absorb but will be strengthened by the normal scar tissue formed after the operation and which is always present. When this step in the operation is complete, the fascias to be closed should be carefully wiped with gauze, all the areolar tissue cleared off, and lapped after the method of Edmund Andrews", and sewn in position without tension.

While this proceducre is going on, one of the assistants has closed the wound in the thigh by running sutures of No. 1 chromic gut, or by any method the surgeon wishes to use.

Care should be used in these operations to observe rigid aseptic technic. The operation should be done wholly under local anesthesia. A dual herniotomy should be done in all cases where there is the slightest suspicion of a relaxed ring on the other side. If the operator wishes to use fascia for the extra suture he can do so as two strips are usually sufficient, and three strips can be used without damage to the fascia lata. I have noticed no damage to the patient from the removal of this fascia in any of my cases.

REPORT OF CASES

Case No. 1. G. C. S. Age 38. This was a very large irreducible hernia of several years standing and filled the scrotum. This was the first human case on which I used fascia lata suture. The rectus muscle and conjoined tendon were woven with a basket weave and the abdomen closed. The contents of the sac, in this case, were quite interesting. The cecum was far down in the scrotum carrying with it part of the ileum and appendix. Procedure was rather difficult and sharp dissection was required throughout. Time required, nearly two hours.

Case No. 2. Age 62. This man had a large ventral hernia. Operated three times without success. Little hope was held for a repair of the abdominal wall, but the man's symptoms indicated that the adherent intestines in the sac required surgical interference. Fascia lata suture was woven across the abdominal wall. Four strips were used, each one thirteen inches long. Adherent intestines were found in the sac and one portion of the ileum was almost entirely closed. This man developed pneumonia twelve days after the operation and tore a hole through the abdomen about one inch internal to the wound that was closed with sutures. He had rather a stormy convalescence, but recovered, and the abdominal wall is in fairly good condition, with the sutures in position. They can be felt as strips across the gap and there is very little bulging in the abdomen. This is at a point internal to the original hernia wound and apparently in no way connected, but due to a split in the rectus sheath which was not found nor recognized at the time of operation. Therefore, this case can-

not be classed as a recurrence, as the original hernia wound is still held intact by the fascia lata sutures.

Case No. 3. S. H. G. Age 62. This man had two large complete inguinal hernias, the right being much the larger. The left was smaller, recent, and fascia lata suture was used to repair it. A large sac was dissected loose on the right side up to the abdomen. This sac was well down in the scrotum. The peritoneum was opened and the contents reduced. The hernial opening was then enlarged and the femoral portion drawn into the abdomen, ligated and stitched to the peritoneum. The scrotal portion of the hernial sac was then amputated at the neck, and the peritoneum closed with plain catgut. The fascia lata strips were then threaded into a special needle and the ordinary Bassini method of closure used, employing a large amount of tissue from the thigh. The conjoined tendon was absent and no musculature was in its place. A large roll of tissue was placed into the gap and held by these sutures. The man made an uneventful recovery, except for a stitch infection in the fascia lata wound.

Case No. 4. M. W. N. Age 41. This was a large inguinal hernia with a hydrocele present. The operation as described above was used in this operation, without modification for the first time. The rectus muscle was drawn into the gap. The man made an uninterrupted recovery and shows no signs of recurrence.

Case No. 5. L. C. O. Age 28. Robust young man. Recurrent hernia. Operated four years ago for hernia. I found a double sac, direct and indirect. The opening in musculature would admit three fingers. The peritoneum was opened, and the urinary bladder dissected loose with great difficulty. The vas was found separated and wedged into the space just above the symphysis, where it was firmly held by adhesions. The kangaroo suture had been passed directly through it, and was found undissolved. Poupart's ligament was then explored. The strips of fascia lata were taken from the thigh and woven back and forth across the opening, bringing back the rectus muscle which had been exposed by opening the sheath. A second strip of fascia lata was then used to attach the anterior section of the rectus muscle and the transversalis fascia to Poupart's ligament. This line of double sutures was passed below and behind the cord. The cord was then covered by a second strip of fascia lata suture, catching the loose fascia from the femoral. This operation involves modifications that should be made in every hernia case where the operator finds that the condition requires them. Every case of hernia should be treated as an individual proposition.

Case No. 6. F. G. S. Age 52. This man had a recurrent hernia. The sac was found at the upper end of the canal, pushing its way to the outer side of, and above, the cord. It contained omentum, and a small part of the small intestine was wedged into the neck of the sac. This was thoroughly anesthetized and delivered. The blood supply to the small part of the intestine which had been pinched was not entirely cut off. It was deemed safe to return the intestine without surgical interference. A well-formed sac was then dissected loose, cut off, and the operation proceeded with as described above. Living sutures made a firm abdominal wall, and the operation was completed after the method of Andrews.

Case No. 7. M. L. Man aged 26. This was a typical industrial case where the man gave a history of pain in the groin following the lifting of a heavy weight. He immediately consulted the industrial surgeon and hernia was found. He was given a truss and returned to work. This patient had a very well developed hernia and the gap would admit three fingers. In this case the muscle of the internal oblique and the conjoined tendon were placed between the strips of fascia lata, the sutures being pushed upward beneath the peritoneu to the sheath of the rectus muscle and then ou over the conjoined tendon. In other words, they were woven, very much as the cross strips in a rug are held in place.

Case No. 8. D. E. K. Age 52. This was a recurrent hernia. Original operation four years ago. Very strong, fat man with a pendulous abdomen. I did the previous operation. The recurrence occurred two years ago. This operation disclosed a well developed hernial sac one and one-half inches long, following the cord. The abdominal incision was brought down through the fascia almost to the symphysis in the lower part of the wound. A direct hernia had formed in this place and the bladder was presenting. This was carefully freed, pushed back into proper position, and sewn with No. 1 chromic gut. The strips of fascia were then cut away and the mattress suture of the oblique and rectus firmly attached to Poupart's ligament until only a small opening, admitting the little finger, was left for the cord and its structures.

Case No. 9. M. L. R. Age 54. Under local anesthesia an incision twelve inches long was made beginning at the upper end, at the level of the great trochanter. Two strips of fascia lata, approximately 3/5 cm. wide were cut and the ends tied with linen, the strips being left in position. The inguinal region was then blocked, the skin infiltrated, and an incision two inches above Poupart's ligament made in the rectus fascia. The rectus muscle was pushed aside, the peritoneum opened, the appendix removed, and the peritoneum closed. The hernial sac was then carefully exposed and the opening found to be straight in and about three-fourths of and inch mesial to the internal ring. This was a typical direct hernia with omentum in the sac. The bladder was identified as protruding through a separate opening but firmly adherent to this hernial sac. The separating band of fibrous tissue was cut, the sac isolated as far as possible, and an attempt was made to dissect it loose from the protruding bladder. This portion of the bladder had evidently been in the hernial sac for some time as it contained no urine. In spite of careful, slow, sharp dissection this pouch and bladder were cut into and no urine escaped. Pushing the finger carefully down through the opening allowed urine to escape from the bladder. The small openings were closed with a double layer of No. O chromic gut. The fascia lata strips were threaded on a special needle, passed beneath Poupart's ligament through the rectus fascia and down to the peritoneum, brought up and passed beneath the internal oblique, down through beneath Poupart's ligament forming a mattress, back and forth in this manner until the opening was sufficiently narrowed to admit the little finger. The fascia lata strips were then carried around the cord and one stitch taken above. This required the entire twenty-four inches of fascia lata strips. The fascias were then closed by overlapping after the method of Andrews. This case is of considerable interest as it presents a few difficulties not ordinarily encountered.

Case No. 10. S. C. Age 35. Under local anesthesia an incision twelve inches long was made from a point just below the great trochanter down the surface of the thigh, parallel with the fibers of the fascia lata. The fascia lata was exposed, the areolar tissue carefully wiped off, and two strips approximately 3/4 of a centimeter wide were cut, tied with linen at each end, removed, and placed in physiological saline. The fascia wound was then closed by a running suture of No. O chromic gut, and the skin was closed with No. 1 chromic gut. An incision was then made five inches long over the inguinal region; the scar of the previous operation was found to be very heavy and thick. The internal oblique muscle could not be demonstrated, due to its having been involved in scar tissue. The upper angle of the previous operative wound had broken across and the edges were still plastic. Scar tissue had not reformed, and the blood clot which formed at the time of this rupture had evidently been absorbed, although the tissues were still dark and very much injected. The peritoneum was protruding through this opening in a very shallow sac, not a true hernial sac, but peritoneum beginning to thicken. The peritoneum was opened the full length of the wound, and the appendix was found adherent to that portion of the sac protruding in the wound. It was removed. The peritoneum was then grasped at intervals of three-fourths inch with Allison forceps and the edges brought together and held, both edges in one clamp, closing the wound. The finger was then introduced into the upper angle of the wound and pushed down to the symphysis, the rectus sheath having been opened previously. The fascia lata suture needle, threaded with fascia-lata, was then placed beneath Poupart's ligament and the previous scar which had formed was turned back. The needle was then passed through the peritoneum up to the rectus sheath and passed through. It was woven back and forth in this way up to the region of the internal ring. It was then fastened and a second needle threaded with fascia lata was started at this point and the same procedure continued until the wound was closed. The peritoneum was closed by this procedure, but was also closed with No. 1 chromic gut along the line of the Allison forceps. The wound was then closed in layers in the ordinary manner with this exception, the fascia of the internal oblique was overlapped and sewn with three layers of running sutures to the heavy scar below the incision.

The ten cases reported above present some unusual features and are cases that belong in the list of those that should be repaired by fascia lata suture. None of the above reported cases have, up to the present time, shown any tendency to recur.

In the past six years I have performed seventy-seven herniotomies of all types. Of these, sixty-seven were done by the ordinary method, giving each case the attention it deserved. Three of these sixty-seven cases are known to have recurred; some have not been followed up.

The ten fascia lata suture herniotomies have all been successful, with no recurrences, and they were the worst types of hernias, embracing men past middle life, and recurrent cases.

CONCLUSIONS

(1) Gallie and LeMesurier's method of doing hernia operations should certainly be given a trial by all surgeons doing herniotomies, as nothing is added to the hazard of the operation nor to the discomfort of the patient; the operation is only more difficult to perform.

(2) There should be added to the six types listed by Gallie and LeMesurier", all other well developed types of hernia.

(3) The operation should always be done under local anesthesia. There is no occasion to use general anesthesia in herniotomies.

(4) None of these cases were infected, but experience with animals would lead me to believe that this is the best type of suture to use in cases of infection, as this suture would remain intact.

(5) Recurrence of hernias is entirely too frequent to continue doing herniotomies by the old methods.

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SOME SUGGESTIONS CONCERNING THE USE OF HELIOTHERAPY IN TUBERCULOSIS

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The sun is unquestionably a very valuable therapeutic agent. But unquestionably, also, it is being much too generally and too uncritically employed. Even patients themselves, without medical or any other supervision, are venturing to use it. It seems high time to reemphasize the fact that the direct rays of the sun are a most powerful agent, and that, in the practice of heliotherapy, the greatest caution must be exercised. If it continues to be resorted to carelessly and indiscriminately, an important agent in the treatment of tuberculosis will ultimately be thrown into the discard by a good many doctors, particularly so far as concerns pulmonary cases. I am firmly convinced, from observation of patients, as well as from information obtained in discussion with doctors, that at present many sufferers from tuberculosis are being given sun treatment who ought never under any circumstances to receive it, and, on the other hand, that many who should receive it with benefit are being made worse by it. It seems certain that this state of affairs will never be corrected until decidedly more attention is paid, first, to a proper selection of cases, and second, to a proper technic; upon these two factors depends the successful use of heliotherapy.

To propose a plan for a proper selection of cases, and to offer some suggestions toward a proper technic, is the main purpose of this paper.

But first allow me to digress a moment to pay tribute to a fellow physician—still living—who is, perhaps, little known to this company, but who deserves to be recognized for his contribution to the science of heliotherapy. It is a fact of medical history that after Finsen, the well-known Dane, the real pioneer in the use of sun was an American physician living and practicing in Fort Dodge, Iowa—Dr. J. W. Kime. Stimulated by Finsen's work on lupus, Doctor Kime treated that disease with sun in 1897 or 1898. He obtained excellent results, and, reasoning that if sunlight was valuable in skin tuberculosis it ought to be valuable in other kinds, he began to use it, in 1900, for tuberculosis of the lymph glands and lungs. His interest in the subject was so intense that he carried out some researches on the penetration of light rays,—part of his work that has been properly acknowledged in medical literature. He also invented a large mirror, or blue glass, which cut out a great part of the heat rays and concentrated the blues and violets. Since his experiments were inspired by Finsen, who assumed that all the valuable portion of the spectrum was at the right end (we think differently now), it was natural that they should take this direction. Doctor Kime used his mirror to concentrate the rays on the part affected, and, in addition, exposed the patient's body to the direct rays of the sun. He was enthusiastic about his work and talked of it constantly.

Although I knew what Doctor Kime was doing, and on more than one occasion heard him talk about it, I paid no attention to heliotherapy until after the appearance, in 1913, of the important book by Rollier—**Die Heliotherapie der Tuberculose.** This book was so convincing, coming as it did on top of what I already knew of Doctor Kime's experiments, that at last my interest was seriously engaged. A little later an acquaintance of mine, a physician who had visited Rollier's clinic, spoke in my hearing very enthusiastically of the results he had there witnessed, and my faith reached such a point that sun-treatment was soon introduced into my own practice. I began prudently, with an occasional case, at first using it only in uncomplicated, so-called surgical tuberculosis, then later in the so-called surgical with pulmonary involvement, and finally, having had good results in both of these types, in the pure pulmonary. At first in the pure pulmonary, in the absence of any guide except Rollier's warning to proceed carefully when approaching the chest and to avoid toxic cases with high fever, the greatest caution was exercised. My new remedy was used in but few instances, and these few were chosen because they were showing no improvement. No attempt was made to select them according to any rule, for I knew no rules; but luck must have been with both doctor and patients, for enough good results were obtained in these uncomplicated lung cases to encourage further experiment. I was soon

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prescribing sun to an increasing number of patients—to too many in fact, for one day it dawned upon me that some cases were getting distinctly worse under its use. What was the matter?

I thought first of my technic; was that faulty? This was carefully reviewed, with the conclusion that the trouble was not here. From the beginning I had been deeply impressed by the principle so much insisted on by Rollier, that for each patient one must develop a separate technic according as he reacted to the sun. Moreover, the so-called surgical cases—including those with pulmonary involvement, where, as Rollier had pointed out, special attention was required—were nearly all getting well. The trouble, then, was not bad technic. Was it, possibly, after all, that heliotherapy had no place in lung tuberculosis, and that, in thinking it had, Rollier was quite wrong? Certainly an analysis of my results might seem to point in this direction. Furthermore, Rollier had admitted that he had had no experience with pure pulmonary cases. His inference that, since the sun was unquestionably valuable in surgical tuberculosis, it was therefore valuable in pulmonary tuberculosis, was merely theoretical; it had no certain basis in fact.

Let me state my problem again. Under sun treatment, practically all of my uncomplicated surgical cases got better; most of my surgical cases with lung lesions got better; and finally, and most perplexingly, **some** of my pure lung cases got better, and **some** got worse. What hypothesis could account for these partially contradictory facts? I went again to Rollier—without result. All that he had to offer was familiar to me: the unsupported conjecture that the sun ought to be of service in pure pulmonary cases provided it were properly employed.

The mystery centered in lung tuberculosis. What was there in the nature of lung tuberculosis that might afford a clue? It was at this point that I began to attach significance to the well-known fact that this disease was not of one type but of several types. Possibly, then, for one type of lung tuberculosis the sun was a good thing, and for another a bad thing. This hint, in the end, led to certain practical conclusions.

Now most cases of pulmonary tuberculosis, it will be remembered, may be classified in one of two large categories: the exudative and the productive. The broad division was soon found to possess a significance I had not before considered. With it in mind I proceeded to review carefully the various cases I had had under observation. It soon appeared that the lung lesions coincident with surgical tuberculosis could be classed, almost without exception, under the productive type. It also appeared that the pure pulmonary cases which improved under sun treatment belonged to the same type. On the other hand, the pure pulmonary cases which had become worse were almost always of the other, or exudative, type. In this, then, at last, was an explanation of the whole difficulty: **whether the use of the sun was or was not indicated in any particular case depended upon the class to which the case belonged.**

Here appeared to be a general principle; the rest was a matter of detail. Ultimately it was found convenient—from the point of view of heliotherapy, and from that point of view alone—to divide all cases of tuberculosis into five classes. The division is simple; and, while more or less artificial, it is entirely practical, and experience has proven that it definitely solves the problem of how to select cases for exposure to sun. It can perhaps be grasped most readily by means of a diagram.

The rules for treatment may now be indicated under the several classes: (see chart).

Class 1. Use the sun in all cases. The thorax may, after a short time, be exposed like the rest of the body. When the external lymph glands are affected, much time will be saved by using the x-ray before beginning with the sun.

Class 2. Use the sun in all cases, but be careful to avoid reactions, and be expecially careful about exposing the chest.

Class 3. Use the sun in all cases.

Class 4. Use the sun only in those cases which, in spite of the best hygienic-dietetic treatment, remain in a stationary condition, or are already losing ground. Do not use it in others of this class; they will thrive without it.

Class 5. Do not use the sun in cases belonging to Class 5. It never does good; it often does great harm.

It remains for me to offer a few suggestions concerning proper technic in the use of the sun. About this subject there is, unfortunately, a great deal of misunderstanding. Most physicians to-day know of Rollier's experience with sun and of his results; in fact, mention heliotherapy to the average physician and he immediately thinks of Rollier and of no one else. Most physicians, too, have heard of his technic, or method, and here, it seems, is where the

confusion arises. A great many confuse his technic with his zoning scheme. They seem to think this zoning scheme—five minutes to the feet one or more times the first day; ten minutes to the feet and five minutes up to the knees the second day; fifteen minutes to the feet, ten minutes to the knees, and five minutes up to the hips the third day; and so on—comprises a technic. And they appear to imagine that when they have mastered this simple procedure they have mastered heliotherapy. Indeed, one often hears this zoning scheme spoken of as if it were a definite, settled thing, as if it had been promulgated, once for all, as a precise program that could be used in exactly the same way on all patients, as, for instance, one would use some fixed laboratory method. But this is simply not true. Rollier never intended his zoning scheme to be considered in the least as a technic for giving sun. He knew from his experience that if the sun was to be given to patients successfully it must be given in a very gradual manner, and that, by beginning with the extremities rather than with the trunk of the body or with the seat of the disease, a decongestive effect was produced,—one was much less likely to get unexpected reactions,—and it was easier to feel one's way. He had found in his experience, moreover, that the average patient could stand five minutes as an initial exposure and could then gradually increase the exposure without bad effects. He therefore published his zoning scheme, but only as an instrument to be used tentatively, and above all to be adapted to each individual according to his idiosyncratic reactions. If there is any one thing which he emphasized more than another, it is the necessity of finding out the amount of sun which each patient can stand. Another point on which he insisted is the need of great caution when approaching the chest. And still we see many patients exposing their chests exactly as they do the rest of their body, and this even in the presence of very active pulmonary tuberculosis. (The same caution, it may be added, is needed in respect to the abdomen when one is dealing with tuberculosis of the peritoneum; in such cases careless or premature exposure produces no good result and frequently does harm.) It is unfortunate but true that in giving sun, as in so many other things, there is no short cut to a satisfactory technic, no hard and fast rule which one has only to follow in a mechanical way. Technic in heliotherapy is made up of many and often elusive factors; and, depending as it does on individual differences which cannot be known in advance, it must be developed little by little, as one goes along. A separate technic must be built up for each patient day by day, according as he reacts under exposure. One must never consider the zoning scheme as anything other than a way to start the patient off, which in many cases will have to be altered. One patient will be found unable to stand five minutes' initial exposure; another will stand this amount of initial exposure, but will not stand five minutes' daily increase; another will react still otherwise. How much to give safely at any time can be known only by watching carefully the patient's actual response.

There is then—it cannot be repeated too strenuously—no such thing as reducing technic in sun treatment to a rule of thumb. At the same time common sense and experience suggest a few axioms of great practical value. First of all, it should be constantly borne in mind that heliotherapy, correctly administered, never produces disagreeable sensations. A patient taking sun may not feel better, either under treatment or immediately afterward, but **he must not feel worse**; nor, unless it be a feeling of well-being or exhilaration, should he have any symptoms which he did not have when the exposure began. If he does experience new symptoms, he is probably over-exposing. Again, the physician who undertakes to practice heliotherapy must study carefully meteorological conditions. Taking sun at the seashore is one thing; taking the sun on the desert, or on the plains, or in the mountains, is another. The precise condition of the atmosphere may be of primary importance. Is it moist or dry, hot or cold, windy or still, contaminated or not with smoke and dirt? Is the sky cloudy or clear? Some of these factors, it is obvious, are dependent on the time of day at which the sun is taken, and on the season of the year. And, finally, the prescription of sun must be regulated with reference to the physical condition of the patient. How sick is he? The sicker he is, the less sun will he stand. Is his disease simple or complicated? Is he a brunette or a blonde; and, if the latter, is he an ordinary or a Titian-haired blonde? Each one of these items, however trivial it may appear, will be involved in the patient's individual response to heliotherapy.

In addition to these axioms, as I have called them, there are certain rules of a more or less mechanical nature which apply alike to all patients. They are very simple, and should be well known, but they are so

often neglected that there can be no harm in restating them here.

ELEMENTARY RULES IN HELIOTHERAPY

1. Always see that the patient protects his head, either by keeping it in the shade or by wearing a broad-brimmed hat.

2. Always see that the patient wears dark glasses to protect his eyes. By dark glasses I do not mean colored lenses, but the plain shaded lenses calculated to cut off the light rays proportionately.

3. Always see that the site of the disease is kept covered until such time as lack of reaction and incipient pigmentation show that everything is progressing favorably.

4. Always see that the patient first exposes his feet and then proceeds towards the trunk.

5. Always see that the patient's body is protected from cold wind; he must feel comfortably warm.

6. Always, in all cases of pulmonary involvement, see that the chest is covered up until it is certain that the patient is improving; then, and then only, may he safely proceed to expose the chest.

7. Always, in all cases of peritoneal involvement, see that both the abdomen and chest are covered up until definite improvement is started; then, and then only, may the patient proceed to expose the parts heitherto protected.

CHART

1. Classification of Tuberculosis in Relation to Heliotherapy.

Note. The scheme which follows is offered as a working classification only; it is made solely with reference to heliotherapy, and except in this connection it has no necessary meaning or value.

TUBERCULOSIS

- Extra-Pulmonary: (So called surgical) infections of external lymph glands, bones, joints, peritoneum, etc.
  - Without pulmonary lesion — Class 1.
  - With pulmonary lesion — Class 2.
- Pulmonary: Infections of lungs and tracheo-bronchial glands.
  - Productive
    - Childhood type (tracheo-bronchial glands) ..... Class 3.
    - Adult type (lungs) ..... Class 4.
  - Exudative ..... Class 5.

KEY TO DIAGRAM

Class 1. Use sun in all cases.

Class 2. Use sun in all cases, but be careful to avoid reaction, and be especially careful in exposing the chest.

Class 3. Use sun in all cases.

Class 4. Use sun only in those cases which in spite of the best hygienic-dietetic treatment remain in a stationary condition or lose ground.

Class 5. Never use sun.

DISCUSSION

DR. M. K. WYLDER, Albuquerque, N. M., (opening): I am glad Dr. Watson has called attention to the greatest thing we have here in the southwest. Sunlight is the one thing on which all life depends, and we do not use it enough. I had an experience in St. Louis which I think might be of interest. At the Shriner's Hospital there they showed us a great many patients with tubercolous hips and told us that in the summer, when they had a little sun, they kept the patients in it and the improvement was constant, but that when fall came and the sun went into a long period of hiding, they then used the quartz lamp, but could not even hold them stationary, and by spring they were all worse than the year before. I told them their hospital was in the wrong place; that it should be out in the land of sunshine, to which they all agreed. In the Mississippi Valley, every baby is started on cod liver oil by the third month, and then they cannot prevent rickets, while here, with practically no cod liver oil being used for its antirachitic vitamin, rickets is almost unknown.

We must not lose sight of the fact that sunlight is good for almost every condition,—chorea, congenital heart disease, malnutrition, and scores of other conditions. We cannot afford to overlook this very valuable therapeutic agent, which has been placed in our hands by the Giver of all good gifts.

DR. F. D. VICKERS, Deming, N. M.: It seems to be the opinion of a great many men back east that heliotherapy consists of buying a violet ray lamp. There was a doctor in my office the other day from a middle west town of about eight hundred. He does some consultation work and runs three violet ray lamps. Violet ray lamps seem to be good for everything. I wonder if we are not now curing the cases with the violet ray lamp that we used to cure with static machine. Dr. Pritchard from Battle Creek, Michigan, says that they have discarded their violet ray lamps and have put in arc lamps. I should like to hear Doctor Watson tell us something about the lamp..

DR. SAMUEL WATSON, (Closing): Answering Dr. Vicker's question, I might say that I personally have had no experience with any artificial lights, Alpine lamps or others. In this part of the country we don't need them. I think all men who have really done any part of research work on the matter of comparing the sun's rays and any artificial rays, agree that there is no comparison. All are in favor of the sun.

Total Thyroidectomy in the Thyrotoxicosis of the Exophthalmic Type. A Preliminary Report. P. K. Gilman, M. D. and W. E. Kay, M. D., San Francisco, Calif. Am. Jour. Med. Sci., February, 1926, p. 239.

These authors, impressed by the failure of the usual surgical measures to bring about the desired results, have resorted to total thyroidectomy in selected cases, chiefly those who have long been sufferers and who have been completely incapacitated. Following total thyroidectomy, it is necessary that the patient have thyroid extract the remainder of the life, the dose varying with the individual. The necessary dose can be determined by basal metabolic determinations.

DIAGNOSIS AND TREATMENT OF URTERAL CALCULI

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Ureteral calculi are primarily renal calculi in their origin and composition. Their name and peculiar characteristics are due entirely to their position. In this discourse, it is our purpose to deal only with a few of these distinguishing features and the problems which they present.

The symptoms of ureteral calculi are not definitely diagnostic. Usually they point to the genito-urinary tract as the seat of the trouble, but this is not necessarily true. Cabot found that out of 154 cases of renal and ureteral calculi, 26 had had previous unnecessary operations. Braasch, in reporting 484 operations for renal lithiasis, found one-third of these had had previous laparotomies for pain. Unquestionably, renal pain is not always easy to recognize. Pain is usually present with ureteral calculi, and, in fact, is usually more severe than that due to renal lithiasis, in which condition it is quite frequently absent. Braasch reports pain in ninety-eight percent ureteral calculi, whereas the percentage in renal calculi is generally placed at about seventy. In reviewing the forty-nine cases of known ureteral calculi at Scott & White Clinic during the last three years, we found pain present in forty-eight, or in ninety-eight percent. This pain may be due to two factors: obstruction. or infection, or both. However, practically all upper urinary tract pathology may be associated with pain, so that beyond the element of its severity, it is of little diagnostic value. The same may be said of most of the other urinary symptoms, even the much valued urinalysis. The presence of blood is, of course, always to be looked for and is usually significent. It is found in about one-third of the cases, but again, it is not a definite sign. We have, possibly, been too prone in the past to exaggerate the significance of a few red blood corpuscles in the urine. Braasch found no blood or pus in twelve percent of his cases. Cabot found fourteen percent had normal urine and, in our own series, we found fourteen and one-half percent. Thus we find that the symptoms are, in most cases, merely suggestive and point the way to further more accurate means of diagnosis.

Physical examination reveals very little beyond a tenderness in the loins or abdomen of the affected side. Occasionally, a stone may be felt by vagina, but this in itself is only suggestive and needs corroboration.

The chief reliance for diagnosis has come to rest on the x-ray, the cystoscope and the ureteral catheter. If practical, the x-ray should always be employed first as the future conduct of the case may depend largely on the size, shape and position of the shadow. The question of how much dependence we can place on the unaided x-ray is a most important one. Braasch states that it is doubtful if an accurate diagnosis of stone in the ureter can be made from roentgenographic data alone in more than sixty percent of cases. Cabot places the figure for negative x-rays at from ten to fifteen percent. In our own forty-nine cases of known calculi, fourteen, or twenty-nine percent, were reported negative. This would more nearly approximate Braasch's estimate.

The chief errors of x-ray diagnosis are due to (1) failure to properly interpret the shadows present and (2) failure to show shadows. Failure of proper interpretation may be due to shadows from numerous other conditions such as fecaliths, phleboliths, calcified glands, etc. These must be ruled out in conjunction with the cystoscope. At the Scott & White Clinic, 124 cases of questionable ureteral calculus shadows have been reported in the last three years. Of these, thirty-four were proven positive; thirty-seven were ruled out by the ureteral catheter and pvelogram: and fifty-five were not investigated although seven of these had cystoscopies for other conditions. Of the fifty-five not investigated, thirty-one did not have any genito-urinary symptoms. These figures again show a rather large element of uncertainty and the need of cystoscopic co-operation.

In the failure to cast a shadow where stones are present, a similar error prevails. Braasch has found this error in his cases to be eleven percent. Our own series shows a mich higher one, there being fourteen cases, or twenty-nine percent, in which a negative finding was reported. The cause of such negative findings may be faulty technic, stones overshadowed by the heavier

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bones of the pelvis, stones too small to show, or non-opaque stones. In our own series, we have felt that the last two causes will explain the negative findings.

The next resource is the cystoscope, but not necessarily alone, for it also may be in error unless aided in turn by the x-ray. Observation of the ureteral meati, particularly in conjunction with indigo-carmine, gives an excellent idea of the presence or absence of obstruction, and a general idea of the functional value of the kidneys. Edema about the orifice on the affected side is frequently of value in determining the side and position of the stone. Passage of the ureteral catheter is the next step to determine the presence of obstruction, its position in the ureter, and the amount of retention behind it. With the opaque catheter, we can rule out or confirm all the previously reported doubtful x-ray shadows and determine more exactly the position of the positive shadows. The pyelo-uretrogram still further aids us in location of the calculi and the determination of the condition of the ureter and the kidney above. In cases with the symptoms and cystoscopic findings suggestive. But the x-ray negative, definite confirmation of stone can nearly always be made by the use of the wax-tipped catheter.

The treatment of ureteral calculi depends upon a number of conditions. These include the size and position of the stone, the presence or absence of obstruction, the presence or absence of infection, the condition of both kidneys as shown by their functional tests, the length of time which the stone has remained in the ureter, and the presence or absence of other calculi in either the ureter or the kidney of either the same or the opposite side.

The size of the stone is of importance since, obviously, the larger it is the more difficult will be its passage. A large stone low in the ureter may be treated more expectantly than one high up, for the former has already accomplished a good deal in the way of passing. It is always a problem as to just how large a stone will pass thru the ureter. Keyes says that we can reasonably expect any calculus not over one centimeter in diameter to pass, other conditions being favorable. Whether to wait on a large stone will depend in large part upon the amount of obstruction, the presence of infection and the amount of damage already done to the kidney. In this connection, Cabot has advised that any large stone discovered by accident and not giving symptoms should be immediately removed.

The small stone presents a similar problem, but here we are more inclined to the Fabian policy, and can more safely leave the offender alone. If there be no infection and little obstruction, which is frequently the case, such a stone may be observed by the x-ray for a matter of months in the hope that it will pass. It is with this type of stone also that the cystoscope can be of its greatest aid and should always be employed to hasten matters.

The position of the stone has considerable bearing on whether or not it can be removed by cystoscopic manipulations. Obviously, the nearer the bladder, the easier this becomes. Fortunately, the large majority of ureteral calculi are in the lower third of the ureter when they come under observation. Braasch found seventy-four percent so situated. The stones situated higher, more frequently come to operation. In our own series, all but two ureterotomies were for calculi in the upper third of the ureter.

Obstruction is of importance, not only symptomatically but also because of the fact that, with obstruction present, there is always some kidney impairment and always the impending danger of infection. Obstruction is usually first observed by meatoscopy. In thirty-five out of the forty-nine cases in our series there was no jet from the affected side, while, of those remaining, the jet was poor in seven. Passage of the ureteral catheter is, however, really the determining factor. Usually when the symptoms are acute this affords almost immediate relief. The catheter should then be retained in place for some twenty-four to forty-eight hours, both as a palliative and as a therapeutic measure, for the inlying catheter seems to aid in the later passage of the stone.

Infection is by no means always present. When it is, it almost always calls for early removal of the stone. This is particularly true if it be acute and associated with obstruction. In some cases of old chronic infection, where the patient has become well vaccinated, the need may not be so urgent.

The function is of great value in deciding the treatment, not only because the damage done by the offending stone is judged by it, but also because the ability of the other kidney to carry the burden is determined. Especially is this valuable where nephrectomy is considered.

Stones which have a long history and which, through various means, are known to have remained in the ureter for a considerable length of time, will usually have

to become embedded in the ureteral wall and are almost always extremely difficult to be removed by operation. They seem to dislodge. They should all be removed as soon as expedient, as they are a constant menace. The complications of periureteritis and subsequent stricture are to be looked for most frequently following this type of stone.

The presence of other calculi in other parts of the upper urinary tract calls for a consideration of many factors. Bilateral ureteral calculi should be removed as soon as possible and frequently operation will be the necessary choice of means. If there be two small stones in the same ureter, under some conditions they may be allowed to pass, but with anuria and infection always imminent, too much delay cannot be encountered. Two large, or one large and one small stone, will more frequently demand operation. Where there is a complicating renal lithiasis on the opposite side the ureteral stone should, as a rule, be removed first and its kidney allowed to recuperate as fully as possible before disturbing the other kidney by an operation.

If the renal calculus be on the same side, the procedure will depend considerably on the amount of damage already done the kidney and the amount of infection present. If the kidney be in good condition, the ureteral calculus may safely be removed first. If the kidney be greatly damaged and infected, it should be removed and the ureteral stone with it. If the ureteral calculus cannot be removed, it may be abandoned in the ureter where it rarely causes further trouble. In the cases before cited, there were eight nephrectomies, four of which were performed for renal and ureteral lithiasis combined and four for ureteral lithiasis with pyonephrosis.

The method of removal of ureteral calculi by cystoscopic manipulation has been unusually successful within the last few years. To enumerate the chief maneuvers, they are: (1) simple passage of the ureteral catheter; (2) injection of anesthetic and lubricating solutions; (3) dilatation of the ureter with mechanical dilators; (4) passage of large dilating bougie and catheters; (5) cutting the ureteric orifice by means of cystoscopic scissors or fulguration; (6) retention of one or more ureteral cateters; (7) removal of the calculus by means of the cystoscopic forceps.

By these means, many may obtain excellent results. H. W. Mathers recently stated that ninety-five percent ureteral stones should be so removed. Crowell reports the removal of eighty-eight out of ninety-five stones by cystoscopic manipulation. Buglee says that out of 429 ureteral calculi in 317 patients only forty-seven required operation. In our own series five stones were removed with the cystoscopic forceps, sixteen passed within a few days and eleven presumably passed somewhat later. Six ureterotomies were necessary, which is slightly over twelve percent of the total.

All of which would lead to the conclusion that, in spite of the many urgent indications, ureteral stones can be removed by means other than operation, and that a more determined effort should be made to avoid operation in these cases and secure their passage thru cystoscopic manipulation.

DISCUSSION

DR. K. D. LYNCH, El Paso, Texas. (opening): Dr. Simpson kindly sent me a copy of his paper. I am sure everybody found it a most excellent one. Urology is a young speciality and as we go along this type of paper discloses the necessity for cooperation for diagnosis of these conditions.

Dr. Simpson has gone over the various diagnostic procedures and I will not weary you with a repetition of them, except to emphasize the necessity of the x-ray, catheter, and radiogram in making the diagnosis. The wax tip catheter was sused much more formerly than we use it today. Occasionally stereoscopic radiograms will be necessary and will show that small shadows apparently lying close up against the catheter in a lateral plane, are really far away from it in an antero-posterior plane.

There are several things to take into consideration in deciding to try to remove stones by intra-ureteral manipulations. Some people do not stand cystoscopic treatment, no matter how carefully it is done. In some, reaction is too severe; others, who live at a distance, cannot make the necessary trips. Many years ago we used to grasp stones up in the ureter with forceps; ordinarly we do not make such attempts today. Mainly we rely on the dilatation method injection of olive oil and cocaine.

Dr. Simpson is probably right in his conclusion that he can get out many stones without operation. The intra-ureteral method works very successfully. I have removed 115 stones without operation. About five percent come to operation.

DR. CHARLES M. SIMPSON (closing): I wish to thank Doctor Lynch very much for his generous discussion. As for the finding of double ureters, I am sure we all slip up on that occasionally for I, in turn, on more than one occasion, found them where competent urologists in other clinics have overlooked them. It simply behooves us all to be more carefully on guard to discover them.

As for the number of manipulations necessary to cause the passage of a calculus, it is, of course, difficult to say in any one case. The average number of manipulations for the cases reported was three, but statistics mean very little in the single case. It may be of value occasionally, however, to be able to answer the patient's question as to the probable length of treatment by giving him the average number as here found.

Doctor Lynch mentioned one fact with which I heartily agree, and that is that, as far as possible, we would avoid removing the calculus from the ureter by means of any of the several grasping

forceps in general use. I have had occasion to examine several of those patients where I had removed the calculus by this procedure, and, in nearly all of them, there was found to be some evidence of damage to the ureter, usually in the form of a slight stricture. If we can get the patient to pass the stone spontaneously, I feel that we are giving him the best treatment after all. It may not be quite as spectacular but it is certainly more safe.

Mention has been made of the difficulty in distinguishing ureteral calculi shadows from other shadows in the same region, and I wish to cite one case illustrating this point. The patient was a doctor who was seized, while in his office, with a severe pain in the right side, typical, in all respects, of a renal colic. He was given large quantities of opium and brought to the hospital in a rather serious condition. On x-ray investigation, two large shadows, about three-quarters of a centimeter in diameter, were found in the bladder region, one on each side and in about the ureteral line. A diagnosis of bilateral ureteral calculi was made from the symptoms and x-ray alone. On cystoscopic examination, the bladder showed considerable inflammation and the kidneys a somewhat delayed and reduced function. The catheters on both sides, however, passed up to the pelves without obstruction or other evidences of calculus. The urines showed a definite infection on both sides, but x-ray with catheters in place revealed the two shadows at least one and one-half centimeters outside the ureters and not associated in any way with them. This has been confirmed by a more recent examination. The patient has recovered and is now perfectly well with no ureteral obstruction whatever or other urinary symptoms. I cite this as an interesting case in distinguishing the various types of shadows where the symptoms were extremely suggestive.

IMPACTED URETERAL STONES

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During the past few years, the writers on ureteral stones have shown that seventy-five to ninety-five per cent can be made to pass with the assistance of x-ray study and ureteral catheter manipulations. In a recent paper by Doctor Simpson of our Clinic, twenty-six cases, observed in eighteen months, were reported, with only one stone removed by operation. During the months of October and November, 1924, we had four cases which demanded operation, and it is my desire to describe briefly these cases, mentioning some special features in connection with the operations. In all four cases, several attempts were made with ureteral catheters to assist the passage of the stones, but these were of no avail.

Case I. Mrs. W. M. P., age thirty-eight, had an impacted stone in the left ureter two inches below the kidney pelvis. Her pain was all on the right side, the right kidney function was diminished, left kidney not functioning, and her general condition not good. She was very much afraid of a general anesthetic, so the operation was performed under local, using one-half of one percent novocain. A curved loin incision was made. Just before the operation, a No. 9 catheter was passed up the ureter to the stone, and after the stone was removed, this catheter was grasped with a ureteral forceps and brought up thru the ureter opening, then passed into the kidney pelvis. The ureter was sutured over the catheter, which remained in the kidney seven days. The patient made an excellent convalescence, and when she left the hospital, had a normal pelvic capacity and good function, a No. 6 catheter passing easily into the kidney pelvis.

Case II. Mr. J. L. V., age thirty-one, had an impacted stone over the wing of the right sacrum. His operation was performed under ethylene anesthesia, thru a Gibson gridiron incision. As in the first case, a catheter, this one a No. 6, was passed to the stone, which was removed and the catheter passed into the kidney, after which the ureter was closed. He made an excellent convalescence and at the time he left the hospital, a No. 6 catheter passed easily to the kidney pelvis.

Case III. Mr. J. C. F., age thirty-nine, had had a bilateral pyelonephritis since 1918. We had given him many cystoscopies. There were stones in the right kidney, with an impacted stone three inches below the pelvis. Just before the operation, a No. 7 catheter was passed to the stone, and thru a curved loin incision, under local anesthesia and ethylene, the stone was removed, the catheter passed on into the kidney, and the ureter sutured. An incision was then made thru the lower pole of the kidney, that the soft stones embedded there might be removed, and a No. 18 urethral rubber catheter sutured into pelvis of kidney thru this opening for drainage. He made a most satisfactory convalescence. Before he left the hospital, a No. 6 ureteral catheter passed easily to the kidney, and also was passed easily six weeks later.

Case IV. Mrs. E. F., age thirty-three, had bilateral nephrolithiasis and pyonephrosis. Her general condition was only fair. A No. 8 ureteral catheter was passed to the stone in the left ureter, three inches below the pelvis, under local and general anesthesia, the stone removed, catheter passed into pelvis, and the ureter sutured. The posterior surface of the kidney pelvis was then opened and several small stones removed, the pelvis irrigated, and the opening closed. She made a good convalescence, and a No. 6 catheter could be passed easily to the pelvis before she left the hospital.

These four cases illustrate different types of pathology and operative technic.

Read before the New Mexico Medical Society at the Forty-fourth Annual Session held at Alburque, N. M., May 19 to 21, 1926.

PATHOLOGY

1. Left ureter stone, with non-functioning kindney.

2. Right ureter stone over wing of sacrum.

3. Stones in right kidney and stone in right ureter, with long-standing bilateral pyelonephritis.

4. Bilateral kidney stones, with stone in the right ureter.

ANESTHESIA

Two cases had local anesthesia of one-half of one percent novocain, working down to and exposing the kidney, then ethylene and oxygen for the extraction of the stones, and closure of the wounds of the Lunder local.

One case had ethylene and oxygen.

One case had local anesthesia.

OPERATIVE TECHNIC

Curved loin incisions, three; Gibson grid-iron incision, one.

A large ureteral catheter was passed up the ureter to the stone just prior to the operation, and when the stone was removed, the catheter was passed on into the pelvis of the kidney and the catheter retained in the ureter for seven days. There was satisfactory catheter drainage in all four cases, and the ureters were sutured over catheters in all. There was no urinary leakage from the ureter incision in any of the four cases.

The type of anesthesia and gentle handling of all the tissues, with reconstruction of the ureteral canal over the catheter undoubtedly play an important part in the successful outcome of such cases. Suturing the ureters over a catheter differs from our former technic, but we are very hopeful of its having a decided influence on re-establishing better drainage down the ureter and preventing later strictures at the site of the ureter opening.

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DISCUSSION

Dr. K. D. LYNCH, El Paso, Texas, (opening): I was very much interested in hearing Dr. Sherwood's paper. I think his plan of cutting down directly on the stone a good one, the one I have always followed when possible. I am not entirely in agreement with him about the necessity for a catheter being used to keep the kidney drained after operation. Still, any plan that works for him is the plan for a given surgeon to use.

Dr. CHARLES M. SIMPSON, Temple, Texas: I wish to speak briefly of the end results in some of these cases. Two of them have been coming back fairly regularly for observation and treatment. The man who had the calculi in the right kidney and ureter, has had no pain or discomfort in that side since the operation. The left ureter has a stricture about one-half of the distance to the pelvis and this requires rather frequent dilatation. This side likewise still carries considerable infection.

The woman who had the large calculus in the left ureter and pain in the right side, had a good result as far as the single calculus and the operation were concerned, for we have been able repeatedly to pass a No. 11 Garceau catheter to the pelvis on this side. She has had, however, a very unusual recurrence of calculi, for, some time after her return home, she passed one or two small stones from the left side and returned for investigation. The x-ray was negative and a No. 11 Garceau catheter was passed up the left ureter without obstruction. Within two or three days after this, the patient again began to pass stones, and passed them profusely for the several weeks during which she was under observation. She would pass two or three daily at irregular intervals, and in one week she counted as many as twenty-one stones. Passage of the catheter nearly always resulted in an increase in the number passed for the next few days. At no time did these show in the x-ray. Because the patient was evidently forming stones at a very rapid rate, she was advised to change her home and habits of living, and we have not heard from her since.

This question of recurrence of calculi is an important one and also one about which we know very little. Statistics on the matter are singularly lacking and I know of none or more recent date than those of Cabot and Crabtree in 1916. They made complete follow-up reports on eighty-seven cases; sixty-six of renal calculi and twenty-one of ureteral calculi. Of the sixty-six renal calculi, thirty-four, fifty-one percent, were well. By well is meant clear of infection and no stones. Thirty-two, or forty-nine percent, showed recurrent stones or persistent infection. Of the twenty-one ureteral cases, fifteen, or seventy-one percent, were well and six, or twenty-nine percent, had further trouble, which would indicate that we must be somewhat guarded in our prognosis.

I wish to add one more word concerning the catheters used in these cases. In each case, they were the so-called plain gum-elastic catheter. Some have objected to these because of the fact that they deteriorate and produce a urethritis. We have not found this to be the case in the numerous instances in which we have used them. and still feel that they are safe. We have, on occasion, left them in as long as three weeks without any serious results.

MANIFESTATIONS OF SYPHILIS IN SKIN AND MUCOUS MEMBRANE

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Many years ago, Fournier, the great French syphilographer used several volumes in which to describe the multitudinous manifestations of syphilis, and catalogued conditions simulating nearly every disease found in man. Osler told all he thought essentially necessary in twenty pages of his book. In 1905, Schaudinn and Hoffman demonstrated the spirochaeta pallida. Later workers have studied the life history of this organism in man.

The lesions caused by the action of the spirochaetae on the tissues, and the tissue responses, have been thoroughly studied and described. It has been found that the tissue response in all cases, whether it be chancre, macule, papule, tubercle, gumma, diffuse infiltration or some other form, anatomico-pathologically is essentially the same. With this recently acquired knowledge as a background, Osler, in his twenty pages, systematically outlines very well the whole course of the disease, and one does not have to be a genius to deduce approximately what will happen, anatomically and physiologically, when the spirochaetae settle down in some particular spot and begin to propagate their kind.

For instance, in describing syphilis of the stomach, Osler briefly states: "There is no definite clinical picture, the symptoms depending on the site, and extent, and the stage of the lesion." Who has the imagination to picture completely what could happen under all possible variations of site, and extent and stage of lesions, from the very earliest beginning microscopic reaction to the latest absorption or ulceration and scarring. Osler is content with one sentence and leaves the rest to your intelligent reflection.

Spirochaetae have been demonstrated in integumentary lesions of every kind.

The external manifestations of syphilis, whether the result of diffuse cell infiltrations or circumscribed cell collections, are essentially similar, the result of the presence of spirochaetae causing a tissue response in the shape of a neoplastic growth of low vitality, with little or no tendency to organization into connective tissue. This new-growth displaces normal tissue, presses upon surrounding tissues, become necrotic itself, and interferes with nearby tissue nutrition, frequently resulting, in the case of the skin, in the death, desquamation and ulceration of the superficial layers.

Always, in the beginning, there is this neoplastic growth,—body cells, reacting to the spirochaetae. And the clinical appearances of these manifestations on the skin and mucous membranes, depend on the manner of disposition of these reactionary cells, whether diffuse, circumscribed, etc., together with the later changes in them and adjacent tissues affected by them.

First, from inoculation we find the chancre, genital or extra-genital, usually followed by its scar.

Somewhat later, after general dissemination of the spirochaetae by the blood stream, we have an exanthematous display which may very closely resemble many other skin efflorescences of entirely different origin. This exanthem of the so-called secondary stages may show itself in the form of macules or papules or combinations of those primary lesions and their sequelae, the pustule being in reality a secondary staphylococcic infection on a papule. In the depths of the skin, in the sebaceous glands and in the hair follicles, is regularly found the staphylococcus epidermidis albus of Welch Under normal conditions it apparently pursues a saprophytic existence, but in the presence of a papular syphiloderm it assumes a pathogenic role and produces the pustule. There being no such imbedded staphylococci in the skin of the new-born, we never have, at the start, a pustular syphiloderm in hereditary syphilis, although somewhat later a few of the papules may become infected and become papulo-pustular. In every one of these lesions have been found spirochaetae and reactive cells. Always, at bottom, there is apparently a localized conflict between the unicellular spirochaetae and the multicellular tissue, not, as in scarlet fever, for instance, the result of a universally distributed toxin in the blood, or of anaphylaxis, although anaphylaxis may play some small part in producing these lesions. The very rare vesicular lesion and the bullous lesions we will not discuss.

After another lapse of time, perhaps two

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or more years, and extending on into the late life of the untreated individual, syphilis, or its spirochaetae, makes a third stage attack on the skin. This is shown to the naked eye by the appearance predominantly of tubercles and gummata which give rise to their secondaries, or sequelae, in the form of absorption and atrophy, desquamation and ulceration, scars, pigmentation, or whatever combination the sequelae may take.

Finally, for completeness, we shall merely mention the quaternary stage, with its neuro-degeneration, the attack of the spirochaetae on the central nervous system, often the brain. So, in examining any suspected skin lesion it is well to have ready a quick and clear conception of the whole history of the spirochete from the time of its deposit on a favorable spot through its varied activities. In this way we are less apt to overlook any corroborative past sign of the manifest lesion, such as the scar of a chancre, adenopathy, the scars of tubercular or pustular lesions, pigmentary deposit or its opposite, leucoderma syphilitica, etc. The first visible sign of syphilis, the chancre, genital or extra-genital, may be found on any location where chance may have deposited living spirochaetae on a spot favorable for their life sustenance. It has been found in such an unusual location as the eustachian tube, carried there by an infected catheter.

All of us, undoubtedly, at some time, have harbored on our intact epidermis virulent spirochaetae which were unable to gain a foothold and later died and were brushed off. But let them be deposited on an abraded spot reaching to the malpighian layer or to the derma, where is sufficient pabulum to serve as a culture medium, and there is a successful inoculation, the actual beginning of a microscopic chancre. The spirochaetae, by their actual presence and irritating metabolic products, cause an immunologic reaction which manifests itself by an accummulation of cells in the skin and subcutaneous tissues. New blood vessels are locally formed. There is a stasis and hemorrhage and the formation of blood pigment. Predominently the cells are mononuclears of the type of lymphocytes, plasma cells and larger mononuclears. In the later formed ulcer, polymorphonuclears are found in the base, attracted by the secondary pyogenic infection.

The appearance to the eye, of the chancre, obviously depends on many conditions, —the nature of the original portal of inoculation, whether it was a slight scratch, an abrasion, etc., on the virulence of the organism perhaps, on the reactive condition of the tissue attacked, and, of course, whether the penis, labia, lip, eyelid, etc. The firmness which gives the name hard to the chancre, is caused by the accummulation of tightly packed cells. Fully appreciating these varying circumstances of development, from the moment of successful inoculation to the time when the developed lesion is gross enough to be seen or felt, or both, we can understand why, in one case, when the chancre is first noted it has the appearance of a slightly scaly flattened papule, at another time merely a film of infiltration, or a surface abrasion with underlying infiltration, again an ulcer, etc. I saw one case of chancre of the lip take the form of an outward growing, round mass of granulation tissue. It was clinically similar to a true case of granuloma pyogenicum presenting on the same day, was diagnosed as a second case of granuloma pyogenicum, but by later developments was shown to be the initial lesion of syphilis. So, to recognize the inoculation lesion of syphilis, one must be alert to the possibilities resulting from the battle between the unicellular organisms, the spirochaetae, and the individual cells of the human body. Like everything else about syphilis its manifestations are many and varied, although the essential pathological process in all surface varieties of lesions is the same in the beginning.

Now, as to the secondary or exanthematous stage of syphilis, the beginning lesions, macules and papules, are essentially the same, the macule a slight infiltration of reactive cells, the papule a more compact rounded accummulation of similar cells. But what a variegated appearance they can present by their combinations and sequelae. Practically all the secondary manifestations are self-limited and fleeting. They may resemble almost every other skin exanthem, bacterial or toxic. In the macular syphiloderm have been found spirochaetae and a slight infiltration of cells, but it is mostly the result of a dilatation of blood vessels. Temporary pigmentary deposits are found following the various secondary lesions, formed from the extravasated blood. Leucoderma syphilitica, depigmented areas replacing true pigment depositions, is also a manifestation of secondary syphilis, found most frequently on the sides and back of the neck of young women. The diagnosis of a macular syphiloderm must ordinarily depend on corroborative signs of syphilis, such as the chancre or its scar, adenopathy, mucous patches, Wassermann, etc. Ony-

chia and paronychia are common manifestations found in the secondary stage.

The papular syphilides, circumscribed collections of reactive cells and spirochaetae rising above the skin level, are divided for purposes of description into the miliary, the flat, and the papulo-squamous. The miliary papular is formed around a hair follicle, hence often called the follicular syphiloderm, and is pierced by a hair. According to size we have a division into the large follicular and the small follicular syphiloderm. The flat papular, larger than the miliary, not necessarily around the hair follicles, are also divided into the large and small flat papular syphiloderms. The papulo-squamous results from a dry necrosis and desquamation of the surface of the papular lesions. Moist papules get their distinctive characteristics as a result of the later changes incidental to the location of the papule on the genitoanal, axillary or other moist regions. Mucous patches and opaline plaques result from the syphilitic pathological process in and beneath the mucous membrane. When necrosis and desquamation of the superficial epithelium occurs, we have shallow ulcers. When an added pyogenic infection occurs on the papular lesions, we have, respectively, a miliary or small acuminated pustule, a large acuminated pustule, a small or large flat pustule, —merely the papular lesions plus a pyogenic infection. Rupia is a term used to describe a chronic pustule, which, drying and crusting on top while extending at the base, forms an oyster-shell like accummulation of dried pus and tissue cells. So, although the secondary eruption of syphilis may take myriad forms, and is described in great detail and is divided for accurate description into numerous varieties and subvarieties in special works on dermatology, actually there is always the one underlying pathological process, and accumulation of immunologic cells resulting from the irritation of the spirochaetae, the myriad external manifestations resulting from accidents of location, size, combination and later pathological changes. Ordinarily, but slight traces, temporary pigmentation and some scarring, are left as reminders of the secondary eruption of syphilis.

After a varying period of two or more years, during which time the organisms usually seem to be latent in the body, alive but not propagating, a third skin eruption shows itself. It is manifested by the appearance of groups of cells forming tubercles or gummata in the derma and subcutaneous tissues. The nodules have a tendency to arrange themselves in one or more groups of a segmental, circinate or serpiginous manner, forming a quite characteristic picture, especially when of any considerable duration. Disappearing by absorption, the older tubercles are replaced by atrophic scars, while new tubercles form at the periphery, thus producing the often mentioned serpiginous, or creeping, eruption of syphilis. This shows soft, smooth scars, surrounded by the later formed tubercles, which in their turn are either absorbed or cause necrosis of the overlying epithelium, with secondary pyogenic infection and ulcer formation. So with the gummata, the overlying skin may be destroyed, and pus production on a large scale produced by secondary pyogenic organisms.

To recapitulate briefly. We have, as the first integumentary manifestation of syphilis, the chancre, genital or extragenital, usually later replaced by its scar. In the second stage there is a generalized eruption, macular, papular, pustular, or a combination of these lesions or their sequelae; also pigmentary and leucodermic patches; mucous patches on the mucous membranes and soft papules where heat and moisture are found. A papulo-squamous form on palms and soles as a late secondary manifestation, is of much importance. Finally, in the third stage, any time after the second year we find collections of cells in the form of diffuse infiltrations, of tubercles and gummata with their sequelae, absorption and atrophy, pigmentation, ulceration and scars, all the result, in the beginning, of an immunologic reaction of body cells to infecting spirochaetae.

I have tried to emulate Osler, and present an outline of the chief manifestations, emphasizing their essential unity, and leaving room for your imagination forever as to what syphilis may present on the surface of the body, which is almost anything in the way of a skin eruption.

DISCUSSION

Dr. CLARENCE GUNTER, Globe, Ariz. (opening): There is very little I can add to Dr. Clohessy's paper. We should all feel very much indebted to him for its clearness and thoroughness.

There are a few points to be stressed in regard to diagnosis. First, as to arrangement of the lesions. Usually they occur in peculiar groups, circinate or segmental parts of circles. The distribution is usually on the flexure surfaces and around the face, the forehead and the margin of the hair. Of course they occur elsewhere, and in some cases there is no tendency to this special grouping. Another point is the multiplicity of the lesions. They may simulate almost any and every kind of skin disease. There is seldom uniformity of the eruption as in psoriasis, chicken pox, etc.

The coloring of the various lesions is another

point. It has usually been described as a coppery color or as a dull red ham color. However, color alone is not to be depended upon but should be one of the diagnostic factors.

Subjective symptoms, such as itching, burning and pain in the skin lesions, are practically nil in syphilis except in a very few cases, and this fact should be of some diagnostic value.

In making a diagnosis of syphilis the general picture and history is to be taken into consideration more than any one or two particular lesions, and, in addition, repeated serum tests should be made.

DR. WILLIAM F. BRAASCH, Rochester, Minn.: In the good old days the so-called genito-urinary specialist was also a syphilographer, but in these highly artificial and specialized times the urologist is not supposed to know anything about syphilis, and I am frank to say that I do not know very much about it. However, I should like to add a few words to Doctor Clohessy's admirable paper which may be of practical value to you, and I want to relate some of our experiences with syphilis as seen from a urologist's standpoint.

It was surprising how ofttn we found no clinical evidence of syphilis in the course of our routine medical examination at the Mayo Clinic when a Wassermann test proved to be positive. As a result of our experience, a routine Wassermann examination is now being made on every patient. In spite of the fact that it is necessary to make many negative Wassermanns, I believe that a routine Wassermann on every patient is advisable in general practice. It should be stated, however, that one Wassermann is not always exact. The first Wasserman reaction may occasionally be positive and the second may be negative. It is of value to grade the reactions so that, if positive, a result is graded as 1-2-3 or 4-plus, as the case may be. Not infreqnetly a reaction that was 4-plus on the first examination, will be 1 or 2 plus on the second examination.

A patient came to me some time ago with ulcers of the bladder. A Wassermann was made as a part of the routine examination, and was reported 4-plus. The test was repeated and this time it was reported as being 2-plus. It was reported a third time and the report was 4-plus again. From this it was evident that the man had syphilis. He also had ulcers of the bladder, however, which were not syphilitic. If a patient has a definite lesion and also has a positive Wassermann, one should not necessarily conclude that the lesion is luetic.

The end result of lues is frequently observed by the urologist in the so-called cord bladder. By cord bladder, we refer to that type of bladder lesion characterized by atony of the bladder musculature resulting from a disease in the spinal cord. As a result of the atony, the patient has difficulty in voiding and his condition is frequently confused with prostatic obstruction. On cystoscopic examination, the lesion is easily recognized by relaxaton of the bladder sphincter, diminution of sensation in the prostatic urethra, and the atonic condition of the bladder wall. The Wassermann reaction is positive in only about forty percent of these cases. Since a cord bladder may be the first clinical evidence of lues involving the central nervous system, the importance of its recognition is obvious. The finding is of distinct clinical value in the recognition of early syphilis.

It should be emphasized that an advanced lues of the central nervous system may be present with a negative blood Wassermann reaction. It has been found that with such lesions a Wassermann test of the spinal fluid is frequently positive when the blood Wassermann is negative. In all suspected cases, therefore, a spinal Wassermann should be made, since it is more accurate.

In conclusion, I would urge again a routine graded blood Wassermann test on every patient, and spinal Wassermann test in doubtful cases.

Dr. T. T. CLOHESSY, Phoenix, Ariz. (closing): I just want to say a few words in closing. I was not aware that we were speaking of syphilis in general, as my paper was on "The External Manifestations of Syphilis." I knew what a lengthy and inexhaustible subject it was when I started to write and my only object was to bring out the essential similarities of all the external manifestations.

I believe that if everyone had a good mental picture of the beginning lesions, macules and the papules, and then the later changes that take place, all the rest of the external changes due to syphilis would be much more readily understood."

'MILK-SICKNESS' ERRONEOUSLY CALLED 'ALKALI POISONING'

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Milk sickness is an acute non-febrile disease, probably of a specific nature, due to the ingestion of milk, milk products, or the flesh of animals, usually cattle, suffering from a disease known as trembles. The disease in man is characterized by great depression, persistent vomiting, obstinate constipation and high mortality.

SYNONYMS

Endemic sick stomach, sloes or slows, milk sick, paralysis intestinalis, trembles and alkali poisoning.

HISTORICAL

Milk-sickness was first noted and its association in cattle first defined about the beginning of the last century. The earliest professional account appears to have been published by Drake, in 1809, and was based on the observation of Dr. Thomas Barbee. Since that time it has become an important part of the medical history of the middle west. In some localities the disease was so prevalent and fatal that whole communities migrated from sick sections to parts

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where the disease did not occur. We are told by Colonel Henry Watterson that Nancy Hanks, the mother of Abraham Lincoln, died from the disease in 1818, after an illness of a week and Colonel Watterson further states that the disease smote equally men and cattle. It would seem that as people cleared their lands, fenced the infectious areas and learned the sources of danger, the disease has almost disappeared, and it is only in some of the newly settled sections of the west that it is met at the present day. One of these sections is the Pecos Valley of New Mexico.

For many years, probably forty or more, the disease has been known to break out. Among the early settlers it is said that at times whole families have succumbed to the disease, and whole settlements were very much disturbed at its destructiveness, both to their families and their stock. Since the year 1908, when Jordan and Harvey of the public health service at Washington, D. C., came to the Pecos Valley and made an extensive investigation and isolated and made known the real cause of the epidemic in this section, there has been much less suffering from the disease. In their investigations they isolated an acid bearing bacillus which they named Bacillus Lactimorbi, and which gains entrance to animals through some article of diet.

The diet most commonly suspected of carrying the bacillus is a weed known as golden rod. My own observation is that this is true, for the reason that animals contract the disease on being allowed to eat this weed, which they do not do from choice but only after they have been shut off from their usual diet and are very hungry, or, as in one case which came very near ending it all with me. My own cow was kept in her lot and given all of the good alfalfa hay and wheat shorts she could eat, but made her escape to the open range where there was little except the golden-rod weed. Of this she partook as a matter of change of diet for a couple of hours and was driven back into her lot. On the third day afterward, I, having drunk freely of the milk and eaten of the butter, was taken with a very nervous feeling which was followed by a distressed vomiting lasting five days. The vomiting spells came on from fifteen minutes to one hour apart. A very sour, bitter mucus seemed to be all I could raise. Obstinate constipation continued throughout. I soon became weak and exhausted, with subnormal temperature and no desire to take nourishment, not even water. All eliminations seemed to be shut off, and it seemed to me that nothing taken into the stomach could pass through it. I believe the pyloric end of the stomach was entirely closed as a result of the acid or astringent action of the bacillus on the mucous membrane of this organ. The heart's action was very little interfered with, and I had a subnormal temperature throughout.

Dr. Arthur J. Clay, in his description of milk sickness in a late article in Tice's Practise of Medicine, states that he believes the cause of the disease is an alkaloid intoxication rather than an infection, the intoxication being produced in man by eating animal products of cattle which had fed on the weed known as the Eupatorium Ageratoides (the White Samicle). He describes at some length evidences to confirm his belief. I do not believe that the plant he describes exists in any community where I have observed the disease; on the other hand, the golden-rod is very common.

Other writers have held to the belief that the disease is a mineral poisoning known as alkali, having been taken into stock through their drinking water. Milk sickness may be communicated to man not only through milk or milk products but also through the eating of flesh of animals affected with the disease.

The horse and the cow are the animals most often affected, though the dog is often brought under the influence of the disease by eating the carcass of an animal having died of it. The milk cow may communicate it to her calf and the calf may die, but still the cow show no symptoms of the disease. It has been the observation of many investigators that so long as the cow continues to give milk she is seldom affected; even when whole families have sickened and some of them died, still the cow remained free. I have personally observed this situation. I treated one family of six out of which one, the father, died and others came near to it. The calf that sucked the cow died, and even the dogs that fed on the carcass of the calf died, and still the cow did not sicken. The only explanation is that the mother cow eliminated the poison through her milk and in so doing escaped the disease.

Another peculiar trait of the disease is that stock feeding on the poisoned territory may remain free of the active symptoms of the disease till they have been disturbed,

or choused, in the stockman's language; but when hurriedly driven from one pasture to another, or excited by roping or any fatiguing exercise, they will begin to tremble and sweat and, if not allowed to become quiet, they will fall and quite often never be able to rise.

I am sure that this same condition exists in the human. A man came to my office for advice, and after examining him I saw in his symptoms marked evidence of milk sickness. On inquiry as to his milk supply I was told that his cow was allowed to graze in an infected pasture. I advised him to return to his home and not to take any violent exercise. On his return trip his car stopped and he was compelled to do a good deal of cranking; he became much fatigued, which precipitated a violent attack of the disease. I had him brought to the hospital and cared for him one week before he was able to return. His wife had displayed some slight symptoms. She now had to do more of the drudgery about the place, which caused her to come down with the disease, and I had to bring her to the hospital for care. I believe if these people had kept quiet a few days and discontinued the use of the infected milk they would not have been stricken. It is known that the butter from an infected cow is as infectious as the milk; also, that the flesh of the infected animal is equally so.

SYMPTOMS

The onset is gradual lasting from one to two days, the individual tires easily and becomes languid, loses appetite, and begins vomiting. The bowels become obstinately constipated, this condition continuing throughout the disease, as does the vomiting. The tongue becomes large and flabby, and the breath has a distinct acetonic odor which is a very characteristic symptom. I have felt that I could almost make a diagnosis by the odor of the breath. The abdomen becomes scaphoid in appearance and the aortic pulsation of the abdomen is very marked. The temperature is not elevated, in fact it is usually subnormal, especially as the disease advances. The mind continues clear until very late in the illness, when the patient gradually assumes a comatosed condition and dies soon after. The pulse rate is slow and does not increase in frequency nor much in volume till the advanced stages are reached, when, from exhaustion, it becomes more rapid and thready and intermittent. No great pain is experienced throughout the attack but the distress from vomiting has probably few equals in any disease. The character of the vomit is a sour mucus, with bile, sometimes greenish in color, with the paroxysms at intervals of from fifteen to thirty minutes, and it is so straining in effect that the patient sometimes wishes he could be put out of his misery. The constipation is so obstinate that you feel as if you are dealing with an obstruction and, in fact, it is very much the same, as in many of the cases no bowel movement is ever secured, the peristalsis being completely absent.

PATHOLOGY

Milk-sickness shows very little pathology, except that the mucous membranes of the stomach and intestines show injection of the blood vessels, and the organs themselves are contracted. Peyer's glands show unusual redness. The liver is enlarged, showing a high degree of fatty degeneration. The central veins are dilated and filled with blood and the bile-ducts are compressed.

TREATMENT

Accepting as conclusive the findings of Jordan and Harris (reported after their investigations at Carlsbad, New Mexico, in 1908) as to the Bacillus Lactimorbi being the true cause of the disease, it has been the custom of physicians to prescribe an alkaline treatment, which is exactly the opposite of the treatment prior to that time. The old theory among stock raisers and most doctors, that the real cause of the disease was some alkaline mineral substance, had led them to the belief that the proper treatment consisted in supplying to the system an acid as an antidote. Quantities of both vegetable and mineral acids were administered, which probably did little or no good and caused the patient added discomfort. After the above investigators discovered that it was an acid bearing bacillus producing the malady the treatment was reversed from the acid agents to the alkaline agents; the patients have realized much more comfort, and I believe a much larger percentage have been saved. The bicarbonate of soda is probably as good a remedy as can be given, in drachm doses in a tumbler of warm water to be repeated in one to two hours or as often as needed to relieve the acid stomach. Supportive stimulants may be given hypodermatically, and the oils with the alkaline draughts; also enemas, in the hope of clearing out the alimentary canal. If this is once done effectively, you can venture a hopeful prognosis.

THE ATTITUDE OF THE TAXPAYERS' ASSOCIATION TO PUBLIC HEALTH WORK*

EX-GOVERNOR H. J. HAGERMAN, PRESIDENT
NEW MEXICO TAXPAYERS' ASSOCIATION
SANTA FE NEW MEXICO

I have been asked by Dr. Luckett to present the attitude of the Taxpayers' Association toward public health work. It is advisable in that connection to set forth the objects of the Association of which I have been president for now nearly eleven years and also to examine the purposes of Public Health Service in order to determine our attitude toward the latter from the point of view of the former.

The objects of the Taxpayers' Association of New Mexico are thus stated in its "Articles of Association and By-Laws."

"The object of this association shall be:

1. To aid, encourage, and promote the observance of economy in administration of public businesses, in the state of New Mexico, and in the counties, cities and other political sub-divsions thereof;

2. To secure the placing of all tangible property in the state upon the tax rolls at its actual value;

3. To educate the membership of the association, in tax matters, and upon questions of administration, and the expenditure of public funds;

4. To cooperate with and assist the work of all local, county and municippal taxpayers' associations; and to assist and cooperate with public officials of the state and of cities, counties and other political sub-divisions of the state, in tax matters;

5. To aid and assist in obtaining such legislation as may be deemed wise and necessary for obtaining a proper and equitable assessment of property and collection of taxes for the public revenue and for the furtherance of any other objects of this associations."

From a book on "Public Health in the United States," by Harry H. Moore, which Dr. Luckett kindly loaned me, I will quote a few paragraphs to show the development of the public health movement.

"The work of Chadwick and Simon brought in the first phase of the modern public health movement. This consists of the disposal of waste, the supplying of pure water, and the elimination of conditions under which insect carriers of disease breed. In other words, public health first concerned itself with the control of the environment. The utilization of such measures has led to remarkable achievements; in all parts of the world wherever the appropriate procedure has been applied, cholera, bubonic plague, yellow fever, malaria, and typhoid fever have been brought under subjection.

"The second phare of the modern public health movement includes measures for the control of infections transmitted from one person to another. Here the bacteriologist rather than the engineer has assumed leadership. The discoveries of Pasteur and Koch fifty years ago in the field of bacteriology led to isolation and disinfection as measures for preventing the spread of disease; the work of Jenner and of Pfeiffer and Kolle brought in the use of vaccines; and the researches of Behring and Kitasato, the utilization of sera for the treatment of disease. Now there are available a vaccine for typhoid fever and an antitoxin for the cure of diphtheria as well as a toxin-antitoxin for its prevention.

"The problems of infant mortality, tuberculosis, and various other diseases have led to the development of a third phase of public health—that of personal hygiene. In the prevention of tuberculosis and the diseases of infancy, enviornmenttal control and bacteriology have important functions, but satisfactory progress will not be made, under existing scientific knowledge, unless the care of the body receives attention. Tuberculosis patients and those threatened with the disease must be taught the value of fresh air, rest, and proper food; and, in the prevention of infant mortality, the mother must understand that her own health, together with pure milk and sufficient sleep for the baby, are essential. The prevention of tuberculosis and infant mortality appears to be largely a problem of giving information and teaching adults and children proper habits of living. Personal hygiene, therefore, is largely a matter of public health education—a new type of activity, which must be developed along with personal hygiene. Without education, results from other measures will be greatly limited; but with the wide dissemination of knowledge regarding disease and its prevention. the health of the people may be immeasurably improved.

"During recent years the interest of sanitarians has broadened and now they are beginning to concern themselves with the economic and sociological aspects of the public health movement. The modern sanitarian sees that poverty, as well as ignorance, is a contributing cause of infant mortality, that overwork and fatigue appear to enhance susceptibility to some infections. In addition, there are specific diseases affecting only the workers in certain industries. Although General Gorgas at Panama dealt with pneumonia by raising the wages of the employees upon the Isthmus, it is questionable whether most sanitarians can devise measures to abolish poverty as they have invented measures for draining swamps of disease breeding mosquitos. It is becoming increasingly evident, however, that the sanitarian of the future must take into consideration the economic and social causes of disease and cooperate with those whose chief concern is the elimination of adverse social and economic conditions."

The State Department of Health and the Child's Welfare Board were created by the Legislature of 1919 as separate departments, $13,000 a year being appropriated for the former and $6,000 for the latter. In the legislative session of 1921 the two were united under the State Department of Pub-

*Read before the New Mexico Association of Health Officers, at Albuquerque, May, 1926.

lic Welfare, and an annual appropriation of $40,000 was provided for that Department. The Legislature of 1923 reduced the appropriation to $28,500 a year and the 1925 session fixed it at $41,500. For the eighth fiscal year, ending November 30, 1920, the Department of Health expended $12,989.15 and the Child's Welfare Board $6,000. For the year ending November 30, 1922, the Bureau of Public Health, as a division of the State Department of Public Welfare, expended $26,999.19 of the appropriation and, in addition, funds received from other sources, bringing the total amount up to $40,718.59. The Child Welfare Bureau expended in that year $13,000 raised from state funds and $1445.36 under the Sheppard-Towner Act. For the two bureaus, therefore, the total expenditures amounted to $55,163.95. For the year ending Nov. 30, 1924, the Bureau of Public Health expended $40,967.03 and the Bureau of Child Wtlfare $12,302.95, making a total of $53,269.98 for the Department of Public Welfare. Of the $40,967.03 expended by the Bureau of Public Health $19,237.50 was derived from the State appropriation, $12,075 from the Rockefeller Foundation, $6,613.70 from the U. S. Children's Bureau, $839.66 from the U. S. Public Health Service, the remainder of the requirements being covered by a temporary loan from the State. The Bureau of Child Welfare funds derived $9,262.50 from the State appropriation and the remainder from the U. S. Children's Bureau. At the present time the two bureaus are spending together at the rate of $59,750, of which $41,500 is derived from the State appropriation, $12,400 from the U. S. Children's Bureau and $5850 from the International Health Board. I have spoken about the two Bureaus together to show the increase in expenditures for State supervision. At the present time the Health Bureau has available $24,000 from the State appropriation to the Welfare Department, $12,400 from the U. S. Children's Bureau and $5850 from the International Health Board. For State supervision of Health we have, therefore, $41,850 to spend annually.

In the various counties and cities we find that, in 1921, the expenditures for health work were approximately $50,000. For 1923 budgets totaled $83,405.86; for 1924, $92,855.40; and for 1925, $96,985. These figures, however, do not include amounts included in the budgets for general county funds. With all items taken into account, it is probable that we are spending about $150,000 a year for public health work—a governmental function for which practically nothing was expended six years ago.

These increases in expenditures for public health work, like the increases in other governmental activities, find their underlying cause in the development of state and nation as cooperative institutions for promoting the public welfare.

The former mayor of one of America's largest cities was protesting against certain proposed expenditures for public purposes. In the course of his remarks, he said, "I belong to the period of economy in government, sanity in public expenditures, prudence in city adventures, and safety for the home, industry, and future prosperity of the city." There was a time when city activities were few, operating expenses were low and the public debt was insignificant. The benefit derived by citizens from governmental activities was proportionately small. Congestion of population, higher standards of living, increasing humanitarianism and scientific development have created new needs which government is trying to satisfy and it is becoming correspondingly technical and costly. Roads, schools, libraries, parks, expert advice, and assistance along many lines have seemed to complicate our governmental facilities to the point where scores must be employed where one was necessary a few years ago for the public service, and overhead expenditures have reached the proportions of a real burden of taxation.

Under the present condition of high taxes, and considering the objects of our association, I believe that we would subscribe to the principles above states, "economy in government, sanity in public expenditures, prudence in new adventures, and safety for the home, industry and the future prosperity of our state."

In the report of the Special Revenue Commission submitted to the Fifth Legislature, meeting in 1921, these words were used in concluding a section devoted to a discussion of the State Health Department and the Child Welfare Board: "These various activities to bring about sanitary and wholesome conditions are most commendable in their purposes and indicate the growing appreciation of the importance of health in the welfare of the State. It must, however, appear to all, upon a moment's consideration that there is grave danger of going beyond reasonable standards, if too many agencies are working along the same lines and in the same field." This statement indicates the sympathetic attitude of

the present officers of the Taxpayers' Association toward public health work and what I have already said is sufficient to show that we believe in public health work as a necessary function of government. No function of government, however, should be regarded as outside of the field of consideration. All government is the citizens', and especailly the taxpayers', business. I, therefore, venture to make some suggestions with reference to public health work in general and to its administration in New Mexico in particular.

I think that all will agree that the rapid extension of governmental activities in recent years raises a serious question of how far these activities should go in relieving and assisting the individual. Paternalism in government is certainly to be deeply deprecated. Can the community then engage in these activities to promote the public welfare and stop short of creating a class of indigents and dependents? It is, of course, realized that the community must do all things necessary for its best interests, but the purpose in any effort like the public health service should be a community objective and not an individual relief objective. In other words, the individual is only incidentally affected for the benefit of the community. You will understand that I am trying to express a principle to aid us in drawing a line beyond which government should not be extended in its so-called promotion of public welfare.

Granting the necessity and desirability of public health work, it should, of course, be effectively administered within the proper limits of governmental functioning and to the extent to which the public can afford to pay for the service without drying up the sources of its support. If the service is effectively administered and adequately performed, there should, in our opinion, be a diminishing need for it. You and I have so learned to live and conduct ourselves as to require no health service, though such service is of the highest benefit because of the ignorance on the part of others of proper sanitary and health requirements. But these others will eventually become as well informed as we are, if those responsible for the health service and the schools with which, of course, this service should be closely associated, function as they ought. I do not mean to say that supervision will not always be necessary, but it is certainly to be expected that at a certain point of effective administration the cumulative effects of constant regulation accompanied by education will be such as to reduce the cost of necessary supervision.

New Mexico has often been held up as a "horrible example." As comparison with other states and communities is found possible, however, there are many lines in which we have done well. When our ability to pay is taken into consideration, there are few states which surpass New Mexico in its interest in, and support of, measures toward public welfare. This is true of education, and it is true of public health work. I am informed, for instance, that in the proportion of the rural population reached by the full time public health service, New Mexico stands fourth among the states of the Union. This speaks well for a state of such limited resources. In every county there is a health officer and a health budget. In the eight counties of Bernalillo, Chaves, Dona Ana, Eddy, McKinley, Santa Fe, Union, and Valencia, with a combined population of 150,000, a full time health service is maintained.

Another consideration which I desire to suggest is that health service establishments might be maintained for districts comprising two or three counties. Thus the cost of a full time health service might be shared among several counties.

While there are undoubted criticisms which might be expressed as to the work in several counties, such criticism would probably be those of which you have already been advised. On the whole, the character of personnel in the New Mexico Public Health Service is high and professional standards seem to be well maintained. Togeher with such services as the Biological Survey and the Agricultural Extension, the health service has set a standard for all public service. We have found response also in the handling of public health work, to our suggestions of economy and efficiency. The highest efficiency can be obtained by the expenditure of large sums. But to secure efficiency on reasonable expenditures, takes thought and judgment.

To this I will merely add that New Mexico is fortunate in having a budget system by which it is possible to appraise all the needs of the State and its counties and towns, provide for the necessary revenues to meet reasonable programs of expenditures and thus keep a balance between income and outgo. Among these programs that of public health holds a secure place. Much has been done and more will be accomplished as our financial resources supply the necessary taxpaying ability.

PERNICIOUS ANEMIA

(ABSTRACT OF CURRENT LITERATURE)

ORVILLE H. BROWN, M. D., ASSOCIATE EDITOR

Geo. R. Minot and Wm. P. Murphy, (J. A. M. A. Aug. 14, 1926, p. 470) report the treatment of 45 cases of pernicious anemia by diet, consisting mainly of liver and fruits. At the same time they restricted the fats. Their results were highly satisfactory, equally as good as the results by transfusion. The authors only conjecture as to the probable explanation of the effects of the diet.

Marsh Pitzman (J. Mo. State Med. Assoc., April, 1926, p. 138), reports the symptomatic cure of pernicious anemia by the use of dilute hydrochloric acid. Doses of 15 to 30 drops are given with and after meals for three to five times. All symptoms and signs improved rapidly in his series of thirteen cases after the acid treatment was instituted. He recommends a well balanced diet with no marked increase of any special elements, and says arsenicals are destinctly harmful.

Karl K. Koessler, Siegfried Mauer and Rosemary Loughlin (J. A. M. A., Aug. 14, 1926, p. 476) hold that pernicious anemia is a result, in certain cases at least, of an intoxication through bacterial poisons formed in the upper intestinal tract by colon bacilli, streptococci, Welch bacilli, etc. The toxins are hemolytic, myelotoxic and neurotoxic. Apparently the achylia gastrica and atrophy of the mucosa of the upper intestinal tract are responsible for the growth of the bacteria high up in the tract. In some cases the toxins are not absorbed and pernicious anemia does not develop. In other cases, there is a deficiency of vitamin A. and perhaps of B. and C, and the mucosa is thereby rendered permeable to the toxins and pernicious anemia is the result. On the basis of experimental work and clinical observation they recommend a diet with high caloric value and rich in vitamins A, B and C; codliver oil should be the first source of much vitamin A for the anemic patient; then butter is added in considerable amounts; whole wheat bread made with milk is excellent; at least six glasses of milk and one half pint of cream should be taken daily; eggs are rich in vitamin A and contain some of B; tomatoes have vitamins A, B and C; spinach has A and B; lettuce A, B and C; raw cabbage, A, B and C; carrots A, B and C; string beans A, B and C; Swiss chard A and B; dandelion greens, A and B; cauliflower, A, B and C; endive, A and C; peas A and B; sweet potatoes A and B; hubbard squash, A. These are the chief vegetables to be given. Oranges, lemons, grapefruit, raspberries and apples are the fruits of choice; liver and kidney supply a large amount of vitamin A and B and some C; the patient should also take in water, orange juice or lemonade; before, during or after a meal 30 drops of dilute hydrochloric acid; later 300 c. c. of O.1 to O.2 percent solution of hydrochloric acid should be introduced by a Rehfuss tube into the esophogus. Six yeast tablets should be eaten daily. The authors say the results obtained to date must wait on time to be proven as permenant.

Lewellys F. Barker (J. A. M. A. July 10, 1926, p. 82) recommends, for the treatment of pernicious anemia, bodily and mental rest, removal of foci of infection and elimination of intestinal parasites, administration of large doses of dilute hydrochloric acid, administrations of arnesic, injections of suitable blood and a well balanced diet. He does not believe that foods rich in iron are of especial value, for the body at such times is flooded with iron. He does think codliver oil of great value.

Russell L. Haden said, in discussing Dr. Barker's paper: "I feel sure that the value of dilute hydrochloric acid in large doses cannot be emphasized too strongly in the matter of treatment. I always tell patients that if I had pernicious anemia, I would take hydrochloric acid the rest of my life".

Dr. Henry A. Christian recommended the liberal diet of Minot and Murphy. He said, "In the beginning when the patient is nauseated, one must begin with a small amount of the various foods, but the surprising thing is that soon they are eating a large diet of these heavy, rather rich foods and they are much the better for it".

Dr. W. L. Bierring, also discussing Dr. Barker's paper said: A farmer, aged 40, came under observation about sixteen months ago. Following two blood transfusions the erythrocytes reached 4,500,000. Later in the year he relapsed and the red blood cells were 1,500,000. Two blood transfusions were given with a continued fall in reds to 560,000 and hemoglobin ten percent. At this stage the patient's wife assumed control of the case, took her husband home thirteen miles by ambulance and began feeding him liberally. Soon she had him eating nine times per day, calling for food two or three times a night. In the last six weeks he has had nine eggs and a large T-bone steak daily. In examining his diet list it was found that she gave special prominence to iron, vitamins and protein bearing foods. Eight weeks after the institution of the wife's treatment, the Friday before Dr. Bierring was speaking, the red cells numbered 4,500,000 and appeared to be normal. The man has the appearance of being well.

Dr. Eugene S. Kilgore, San Francisco, said: A physician who is a good observer, and who has pernicious anemia himself, assures me that there is a difference in the value of blood donors independent of hemoglobin percentage, etc. His hemoglobin at one time was down to seventeen percent. He has received fifty five transfusions in the last few years. Most of them were of very transitory benefit until finally he received one from a large boned young woman suggesting the acromegalic type, after which he obtained a definite remission. Six months later, when he began to slip a little again, he secured another transfusion from the same source, and since then he has remained well and in active practice for thirty months. He is keeping track of that woman."

P. B. McLoughlin, (J. Iowa S. Med. Soc., Feb., 1926, p. 58) most enthusiastically announces the discovery of cause and cure of pernicious anemia. The cause is an infection, first a glossitis, then an esophagitis and in turn a gastritis. This causes an absence of hydrochloric acid in the stomach and allows all possible invading organisms to reach the intestines. Fermentations, decompositions and autointoxications result. The toxins are absorbed in large quantities into the blood and hemolyze red blood cells in excess of their production. (The author was evidentally not familiar with the literature, else assertions regarding etiology, at least, would have been modified. Ed.)

His cure for pernicious anemia is mercurochrome intravenously. He makes astounding claims for its results. He also feeds their patients

liberally and gives one dram of dilute hydrochloric acid in a glass of water, sipped slowly, during each meal. (In view of the results obtained by other workers with diet and hydrochloric acid —dilute—the editor cannot but wonder if the mercurochrome had any special function. Yet in view of the almost generally accepted theory of an enteritis and a resulting toxemia, and the even occasional, definitely bactericidal, results from intravenous mercurchrome, perhaps the mercurochrome has value. The fact that the author had two deaths in fourteen cases should be remembered.—Ed.)

Hans H. Reese and Sydney K. Biegler (Am. J. Med. Sec., Feb., 1926, p. 194) report five cases of pernicious anemia. They emphasize particularly the importance of watching for cord changes and even brain changes, in all cases in which there may be a suspicion of pernicious anemia. A brief resume of their picture of the disease may not be out of place.

First described in 1855 by Addison; next in 1868 by Biermer; both descriptions are excellent. Known as Addison anemia or Addison-Biermer anemia. H. C. Wood, Cohnheim, and Minnich, described bone marrow and bone changes. Clinical picture: lemon tinted skin, whitish mucous membranes, glassopharyngitis, gastric achylia and diarrhea or constipation. Blood: low erythrocyte count, anisocytosis (variable size), poikilocytosis (variable shape), decreased platelets, megaloblasts, high color index, icteric index over."

Spinal cord lesions described first by Noone; changes consist of sclerosis beginning in white matter, never in grey; first around blood vessels, resulting in ascending and descending tract degeneration; posterior tract affected more than lateral. Grey and white matter of brain may be affected. Blood changes and neurologic findings may be much at variance. One may be mild and the other extensive. The neurologic changes and the achylia gastrica, one or both, may precede blood changes by years; fourteen years has been recorded.

The signs of neurologic changes are: weakness. fatigue, numbness, pricking sensations, sore tongue, headaches, dizziness, faintness, insomnia, depression, delusions and even hallucinations. Examination reveals: dilated pupils, possible retinal hemorrages, altered reflexes, spastic gait, diminution of vibratory sense, ataxia, sometimes athetosis, altered sensations; shooting pains often present These authors emphasize the especial significance of disturbances of the vibratory sense.

For treatment they use transfusion, arsenicals and dilute hydrochloric acid—with questionable results. They think there is a probable relationship between pernicious anemia and hypoadrenia. They warn that many cases of pernicious anemia are first diagnosed as tabes, neuritis or something else erroneously.

Russell L. Haden (J. Lab. and Clin. Med. Feb. 1926, p. 454), regards pernicious anemia as due to a specific toxin perhaps similar to that of the fish worm. He says diagnosis is questionable if there is free hydrochloric acid present. Hartman reported two cases following gastrectomy. Knud Faber in 1895 reported one case due to chronic intestinal obstruction. Seyderhelm did enterostomy in ten cases; all improved and relapsed when opening was closed. Dixon had the same experience. Seyderhelm produces anemia in dogs by stenosing intestine near ileo-cecal juncture. The records of seven cases of Meulengracht with chronic obstruction are given briefly. He adds one of his own. The obstruction was due to a malignant tumor of the gall bladder obstructing the duodenum and colon. The blood findings were typical of pernicious anemia. His treatment was Fowler's solution and dilute hydrochloric acid (amount not stated). The patient improved in spite of progression of the pathology until pathology became too extensive. Autopsy record is given.

Harold W. Jones (J. A. M. A. May 29, 1926, p. 1673) discusses blood transfusion from its various angles for pernicious anemia and reports thirty patients treated by transfusion. Ten of the thirty are dead. First transfusion was done seven years before. In each of five patients the blood has been brought to a normal count three times; in each of four, twice; thirteen of twenty are doing a part, at least, of their normal tasks. One patient with marked nervous phenomena was raised to a normal count three times in fourteen months.

One death was from pyonephrosis when blood was normal. Another was from pneumonia with normal blood count. Another with near normal count died of a hemolytic reaction. One death was from insufficiency of donors. One death came in a person who refused further transfusions. Two died soon after transfusion, six hours, and two days. Jones concludes: I try the patient on small amount of the blood before starting transfusion; use whole blood in 350 to 450 c.c.; in hemolytic stage begin with fifty c.c. and increase daily; ordinarily transfuse at four day intervals.

J. Lankhout (Nederlandsch Tindschrift V. Geneeskunde, Amsterdam, II, Dec. 19, 1925, p. 2789—Abstr. J. A. M. A. Feb. 13, 1926, p. 522), reports typical pernicious anemia in the director of an x-ray laboratory who had been careless about protecting himself against the ray.

A. E. Somerford (Lancet, London, II Dec. 19, p. 1280—Abstr. J. A. M. A., Feb. 13, 1926, p. 516), gives in detail the blood findings during a crisis in a case of pernicious anemia.

H. Simon (Klin. Wchnschrft, Berlin, IV, Nov. 26, 1925, p. 2295—Abstr., J. A. M. A., Jan. 16, 1926, p. 236), in studying an atoxyl resistant lipase which he finds consistently in diseases of the pancreas, came across it in six of fourteen cases of pernicious anemia. The liapse of normal erythrocytes is resistant to atoxyl and quinine, while that of serum is destroyed by these chemicals.

H. C. Gram (Ugeskrist for Laeger, Copenhagen, Jan. 28, 1926, p. 79—Abstr. J. A. M. A., Mch. 27, 1926, p. 992) discusses the intestinal theory of the cause of pernicious anemia. The important feature seems to be, he thinks, a luxuriant intestinal flora growing higher than normally. Any constriction or obstruction would naturally accentuate the existing tendencies.

G. Taubmann (Deutsches Archir, Klin. Med. Leipzig, CL, Feb.1926,p.309—Abstr. J. A. M. A. Apr. 17, 1926, p. 1254) reports a case with almost every symptom of pernicious anemia, but with free hydrochloric acid in the stomach. In spite of this, the duodenum contained bacilli.

Blumenthal and Neuberger, (Deutsch, Med. Wchnschrift, Berlin, LI Dec. 18, 1925, p. 2119, abstr. J. A. M. A. Feb. 6, 1926, p. 454) studied blood sugar in relation to severity of pernicious anemia and remissions and found no relationship.

F. Johannessohn (Deutsch Med. Wchnschrft. Berlin, Nov. 20, 1925, p. 1953—Abstr. J. A. M. A. Jan. 2, 1926, p. 77.) reports two brothers over sixty each with pernicious anemia; achylia had existed as it had in the mother who died of gastric cancer.

V. Kairinkschtis (Deutsche Med. Wchnschrft, Berlin, Mch. 19, 1926, p. 483—Abstr. J. A. M. A. May 22, 1926, p. 1667), injected rabbits with bone marrow from cases of pernicious anemia. The rabbits became violently ill and died. He believes he found megaloblasts in the blood of some of the rabbits whereas he did not find them in the blood of the controls.

Mortimer Warren (J. Lab. and Clin. Med., May, 1926, p. 743) reports five cases of chronic illness with vague manifestations and all displaying anisocyto is, but with increased red blood cell volume, with little or no anemia. This is a characteristic of pernicious anemia noticable in remissions. The author does not attempt to say that his cases bore relation to pernicious anemia; but the question is raised.

Emile Weil and Stieffel (Bul. d.l. Soc. Med. des Hop. Paris, November, 20, 1926, p. 1454—Abstr. J A. M. A., Jan. 9, 1926, p. 155) conclude from an experience of a number of injections from a donor of plethoric type that plethoric blood is better for pernicious anemia transfusions than in the blood from the ordinary type of individual.

E. Allard (Zentrablatt f. inn. Med., Leipzig, March 20, 1927, p. 258—Abstr. J. A. M. A., May 29, 1926, p. 1738) discusses platelet index in pernicious anemia. He finds the number of platelets and the number of erythrocytes. The number of thousands of erythrocytes is found. For example, in normal blood with 5,000,000 reds there are 5000 thousand. The platelets in normal blood number 250,000. Divide this by 5000 and the quotient is 50. Whatever this figure, it is the numerator over the denominator of 50. In normal blood the index is as shown above. The same method is used to find index in any blood using of course the numbers of platiets and reds. In pernicious anemia the platelet index is usually .2 and less. A low index even when the erythrocyte count is relatively high indicates an exacerbation. A high index with low erythrocytes indicates a remission. No good remissions are likely with less than 10,000 platelets.

EXTRAPLEURAL THORACOPLASTY IN PULMONARY TUBERCULOSIS

Discussion of paper by Major W. H. Thearle, Denver, Colo. South Med. July, 1926.

Col. H. A. Ingells, N. M. M., Roswell, N. W. (opening): All present greatly appreciate the visit of Major Thearle and his presentation of this important subject, he, doubtless having had the largest number of cases of any of the surgeons of the United States

My personal ob.ervation has been quite limited, but I have been fortunate enough to observe the excellent results obtained. Dr. Felix P. Miller, of El Paso, who has doubtless had a larger number of this class of cases than any other surgeon of the southwest.

To confirm the excellent end results obtained it is our desire to report a case of this type referred to us by the late Professor Ransohoff and Dr. Mark A. Brown, Professor of Medicine, University of Cincinnati, shortly after our return from overseas in October, 1919.

A senior student at the University of Cincinnati, enrolled in the S. A. T. C. and in training for active service with the army, was confined by reason of influenza, which was followed by purulent pleural effusion. Resection of a portion of the seventh rib gave some relief but the tuberculosis continued most active. Drs. Ransohoff and Brown then decided upon resection to secure collapse and removed more of the seventh and re.ected the fourth, fifth and sixth ribs which procedure placed the lung at rest and patient began to improve. He was then sent to Roswell as a litter case, where he was confined in one of our local hospitals for a period of one year, his improvement being gradual. Since discharge he has gradually increased his effort until at this time he is cultivating a small farm and orchard, making a financial success of life and is an apparently healthly individual.

This case is reported as an illustration of the excellent results to be obtained from the operative interference as outlined by the essayist.

Discussion by Dr. J. E. J. Harris, Albuquerque.

I think it has been a privilege to hear Major Thearle talk this afternoon. There are several clinical points I would like to have him clear up.

I would like to know his method of digitalizing the patient, and also his after-treatment along those lines. Dr. Thearle also mentioned that he would not care to use morphine to inhibit the cough following operation, and I would like to learn what drugs he uses.

Dr. Wm. H. Thearle, Closing.

Our patients all receive elctro-cardiographic tracings prior to digitalization which latter is carried out according to one of Dr. Cary Eggleston's body weight methods, depending upon the rapidity with which we desire to bring the heart under full influence of the drug. When full digitalization has clinically manifested itself, it is checked again by the electro-cardiograph.

With reference to the drugs of choice in lieu of morphine, we use codeine hypodermically in 32 mgm. doses.

EPITHELIOMA OF THE SKIN

Cancer of the skin is curable in practically all cases if treated skilfully and thoroughly, before it has involved the deeper tissues. The first essential is the accurate determination of the extent of the disease.

The three agents advised are radium, x-ray and electrocoagulation; each has its place and frequently two or three can be combined to advantage in the same case.

For epithelioma about the eyelids radium will serves best, as its biologic effect is about three times as great as x-rays for a given amount of radiation delivered into the tissues.

Lesions about the face are usually in precancerous stage and if treated early, thoroughly and skilfully, results are excellent. Moles should be destroyed by electrodessication done with skill and thoroughness. Papillary epitheliomus can be more certainly cured by electrocoagulation followed by radium and x-ray. For lesions which have extended into the deeper tissues, the treatment of course is more difficult and results uncertain.

Epitheliomas about the temporal region and ear are frequently squamos cells with a graver prognosis. Lesion should be thoroughly destroyed by electrocoagulation followed by heavily filtered x-rays or gamma radiation over the neighboring lymphatics.

In epitheliomas of the lip seen early and strictly localized practically all can be cured. The author's records show a cure of approximately 90 percent of these lesions if treated before there are palpable lymph nodes.

The technic of using these agents requires as great skill, judgment and care as in any surgical operation.

The Treatment of Epithelioma of the Skin. G. E. Pfahler, M. D., Philadelphia. The Atlantic Med Jour., Mch., 1926, p. 381.

Southwestern Medicine

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INDUSTRIAL COMMISSION FEE SCHEDULE

Soon after the organization of the Arizona Industrial Commission, a general invitation was sent out to all the doctors of the state to meet the Commission for a discussion relative to the fees to be paid for the treatment of injured workmen. A fairly representative group of the doctors of the state met with the Commission and had a very enjoyable discussion. A committee of doctors selected from the group brought in a recommendation that the Commission adopt, as a working basis, the Utah schedule.

When the Fee Schedule was announced by the Arizona Commission, it brought forth much criticism, as it was found to depart from the Utah rates in many very important items. After several weeks of discussion in the county socities of the state, the acting president (Dr. Vivian) was petitioned by delegates of four county societies to call the House of Delegates into special session for some concerted action. The Industrial Commission, in the meantime, had expressed their desire to meet with the Medical Association, or an accredited delegation and discuss the points of objection to the fee schedule. The House of Delegates met in Phoenix on July 10th and went over the entire fee schedule, and appointed a Conference Committee to represent the Medical Association in such discussions and conferences with the Commission as might be necessary to secure a satisfactory fee schedule.

In the preliminary conference with the Commission, the Conference Committee found the Commission members very cordially receptive and more than willing to meet the suggestions of the medical profession, wherever possible.

It was made clear, at the outset, by Mr. Sims and Mr. Clingan of the Commission, that they have no desire to enforce a schedule which would be objectionable or unfair. They desire, above all things, to win the friendship and hearty cooperation of the medical profession, because this is necessary to the proper functioning of the Commission's work. They desire, further, that the medical profession will appreciate their difficulties and lend their sympathetic assistance. The doctor who fails to send in prompt reports, who will not itemize his accounts, who neglects any part of the clerical work, throws an extra burden upon the Commission. The doctor who will clearly state his claims for fees larger than those mentioned in the schedule, will find that his claims will be given fair consideration and there will usually be no trouble in collecting these fees.

The Conference Committe at their second meeting with the Commission preesnted their brief of objections to the fee schedule, these consisting of fifty-two specific items. These were given careful consideration by the Commission and at the third meeting, the Conference Committee and the Commission came to an agreement on most items. Without detailing the objections which the Conference Committee presented, the complete and revised schedule as proposed by the Commission now is generally acceptable.

The complete schedule as now proposed is printed elsewhere in this issue for the information of the doctors of Arizona. It is the most liberal industrial fee schedule ever granted. The fair-minded and sympa-

thetic attitude of the Arizona Industrial Commission toward the claims of the medical profession cannot be emphasized and commended too highly. The Commission should receive the cooperation and support of the individual practitioners in handling injured workmen, as well as that of the organized medical profession.

The Conference Committee will continue to function in an advisory capacity to the Commission where advice is desired in any matter of mutual interest to the Commission and the medical profession, or individual practitioner.

PENDING NARCOTIC LEGISLATION

Several months ago, physicians were much heartened by a Supreme Court decision which stated that the Harrison Narcotic Act should not interfere with a physician who prescribes narcotics for a patient, even though that patient is an addict.

The Internal Revenue Bureau, to offset this decision, has introduced legislation which will come up before the next Congress, prescribing severe penalties on doctors who dispense narcotics to any patient not in a hospital. Should this legislation pass and become law, physicians will be more handicapped in their practice than ever before, and great distress will result. How can any physician care for a terminal malignancy during the last months of suffering without using ascending doses of morphine? The only merciful treatment is to set out deliberately to make an addict of the patient and then keep the victim comfortable until merciful death closes the scene. Medical bodies everywhere should see to it that their legislators in Washington understand the situation which a blind or perverse Internal Revenue Bureau refuses to acknowledge.

MEDICAL AND SURGICAL ASSOCIATION MEETING

The dates selected for the annual meeting of the Medical and Surgical Association of the Southwest, to be held in Tucson, are November 11th, 12th and 13th. The Pima County Medical Society, who are the hosts for this meeting, are preparing an excellent clinical program, as well as a fine program of entertainment. Dr. C. A. Thomas is the chairman of the General Committee on Program and Arrangements. The program will be in shape for publication next month.

THE DESERT SANATORIUM OF SOUTHERN ARIZONA

An institution of considerable interest, apparently with sufficient capital to make it a success, is being built near Tucson by Dr. Bernard L. Wyatt and associates. This is intended primarily for the treatment of surgical tuberculosis, but will also take care of selected cases of pulmonary tuberculosis. It is designed to make use of heliotherapy. As a consultant in the physics of light, Dr. D. T. MacDougal, of the Carnegie Research Laboratory of Tucson, is associated with the institution. The announcement of the purposes and plans of this sanatorium is a very interesting development in the medical work of Arizona, and the use of heliotherapy under exact scientific methods and measurements is a step in advance of anything which has yet been attempted in Arizona, if not in the entire United States.

OUR ABSTRACTS

The readers of Southwestern Medicine will be interested in five or six of the abstracts, at least, of the new abstract department. The articles give added, if not new, significance to old lines of treatment of pernicious anemia. The disease has long been an enigma from the standpoint of etiology and therapy; hence any ideas which seem to explain the condition and at the same time to offer a cure should be widely heralded.

The use of dilute hydrochloric acid plus perhaps a diet rich in vitamins A and B seems to be a specific treatment in at least some of the cases of pernicious anemia. The method is simple and harmless and should be given a general and thorough trial with reporting of results.

In the new abstract department we hope to present from time to time, brief abstracts of the literature on various subjects, dealing usually with one subject at a time and abstracting the more important papers which have appeared on the subject.

In doing this the thought is that it is easy for a paper to get buried in the literature and not attract the attention it deserves unless it is brought to light from time to time.

The abstracts in this issue are of articles which have appeared within the past ten or twelve months. A brief resume of the literature previous to that time was given in the Deaconess Hospital Staff reports in the issue of December, 1925.

THE YEARLY EXAMINATION

Many of the physicians of the southwest will recall having read some months ago in a Los Angeles paper of the death in that city of the Salome humorist. The cause of his death as reported in the paper was septic poisoning from infection of the teeth.

It has just come to light that one of our Phoenix physicians gave Mr. Hall, about eight years ago, a general physical examination and that his report was that the teeth, with the exception of two or three, were so septic that there was but one safe course to pursue. Mr. Hall wished to postpone the extraction for a time and passed out of the control of this physician and evidently postponed action until too late.

We physicians are derelict in our duty because we are not fitting ourselves to make complete yearly physical examination or survey of the apparently healthy. Is it too much to say that not one in twenty, or more, of us could make a satisfactory examination of this type without a good deal of drill?

The reason is not that we have not the knowledge, but that we are out of practice. What should we do to get into practice?

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Cottonwood (Populus macdougali)	Feb	April
Shad Scale (Atriplex canescens)	March	June
Rabbit Bush (Franseria deltoidea)	April	May
June Grass (Blue Grass, Poa pratensis)	May	Sept.
Bermuda Grass (Capriola dactylon)	May	Sept.
Johnson Grass (Sorghum halepense)	June	Oct.
Annual Saltbush (Atriplex Wrightii)	July	Sept.
Redroot Pigweed (Amaranthus retroflexus)	July	Sept.
Sage Brush (Artemisia tridentata)	July	Sept.
Cocklebur (Xanthium canadense)	July	Sept.
Russian Thistle (Salsola pestifer)	July	Sept.
Careless Weed (Amaranthus palmeri)	July	Oct.
Slender Ragweed (Franseria tenuifolia)	Sept.	Oct.

PROCEDURE

FIRST, determine when the patient suffers an attack and apply skin tests with pollens of plants causing Hay-Fever at that period.

SECOND, from the resulting reactions determine the antigen that should be used for desensitizing. Several skin tests may be made at one time. Positive tests resulting from plants that pollinate at periods when the patient does not suffer may be entirely disregarded, as the patient is able, without aid, to overcome this sensitiveness.

TREATMENT

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BOOK REVIEWS

An Introduction to Objective Psychopathology. By G. V. Hamilton, M. D., Director of Psychobiological Research, Bureau of Social Hygiene, Inc., New York City; with foreword by Robert M. Yerkes, Ph. D., LL. D., Professor of Psychology, Yale University. The C. V. Mosby Co., St. Louis; 1925; $5.00.

Doctor Hamilton has accomplished what few authors apparently understand. He has made of the chapter designated, "Introduction," what it should be,—an introduction of the reader to the subject matter of the book. Writers usually have a chapter called 'Introduction'; but in the main these chapters present a rambling collection of facts and theories which in no way serves to give the reader a concept of what he may expect in the body of the book.

The author presents in the first part of his book a clinical report of a study of 200 cases referred to him for various forms of real or supposed nervous maladies.

In the main these are the type of patients who so commonly fail to obtain satisfactory management by the medical profession and flock to the offices of the cults and particularly to Christian science and other ready promisers.

Persons ill in mind deserve and demand assistance in obtaining relief. Pathology of thinking has etiology just as has physical disease.

Hamilton makes 35 classifications of "pathologic types of reaction to stimulations which evoked adjustments of the organism as a whole" among his 200 patients. He was able to help many of his patients by teaching them how to adjust themselves to their situations. In too many instances, however, the patients' minds were so seriously disturbed that giving them help was impossible. Had these conditions at fault and remedy therefor, been recognized earlier much good would certainly have been accimplished.

A considerable percent of psychopathologic cases owe their state to sex problems. The veil which is usually drawn over sex urges and sexual gratifications makes an understanding of these cases particularly difficult.

The latter part of Dr. Hamilton's book is given over to his research work on animals which he designed for the purpose of giving him an insight into the problems which are met in the human family. He attacks psychoanalysis in a rational way.

The psychologist speaks a slightly different language from the ordinary medical man. Dr. Hamilton makes his language a trifle more mystifying than would seem necessary. He uses many adjectives and adverbs, usually large ones. For example on page 238 we read: "His psychomorphic interpretations of the facts which lead him to this really great discovery are, in my opinion, misleading and subversive of the methods and concepts which have made possible the substitution of natural science for the semi-mystical, semi-philosophical, largely speculative, essentially unverifiable dogmas of an unscientific age." Again we find combinations of large words which at times take much rereading to fully comprehend, such as "nonconscious endogenous determinants," or "persistent nonadjustive affective reactions to baffling physical discomforts and disabilities," or "direct maladjustive homosexual pealousy reactions."

The nature of the subject is such that new terms have to be designed and probably if they were simpler they would be still more difficult to understand. If the author could restrict himself to fewer large qualifying words his book would be of more value to the average run of medical men. Neverthe-

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value to the average run of medical men. Nevertheless the work is of much value and should be read by all medical men and by lay persons interested in the psychopathic individual.

Some Fundamental Considerations in the Treatment of Empyema Thoracis. By Evarts H. Graham, A. B., M. D., Member of Empyema Commission, U. S. Army; Professor of Surgery, Washington University School of Medicine; Surgeon-in-Chief Barnes Hospital and St. Louis Children's Hospital; Illustrated; The C. V. Mosby Co., St. Louis; 1925; $2.50.

This essay awarded, in 1920, the Samuel D. Gross prize of the Philadelphia Academy of Surgery.

The contention of Dr. Graham is, contrary to accepted opinion, that pneumothorax of one side affects the other lung nearly as much as the one on the side with air in the pleural space, unless pleuritis of the mediastinum or some other factor causes a relative firmness of the mediastinum. Experimental evidence supports his claim. He found in experimental streptococcus hemolyticus pleuritis of dogs, that early drainage increased the mortality rate. Based on these two premises a principle of treatment was enunciated which greatly lowered the mortality rate of empyema of the army camp following the influenza epidemic. The drainage hole should be as small as possible. Dr. Graham reports successful results in clearing up old drainage empyemas by use of Dakin's solution and closure of the opening.

Operative Surgery. By J. Shelton Horsley, M. D., F. A. C. S., Attending Surgery, St. Elizabeth's Hospital, Richmond, Va.; with 666 illustrations by Miss Helen Lorraine; Second Edition; The C. V. Mosby Co., St. Louis; 1924.

Dr. Horsley has an international reputation as an independent thinker along surgical lines. He is a past master in the use of the English language.

The book is not an encyclopedia of operations; the purpose is rather to describe those operations which he does or those which he deems the best for various conditions. The second edition has a new chapter on principles of operations for malignant growths. A number of new operations are described here for the first time in a surgery text book. He lays particular stress on the preservation of physiologic function.

Ocular Therapeutics—A Manual for the Student and Practitioner, by Doctor Ernst Franke, A. O. Professor of Ophthalmology and Chief of the Second Eye Clinic at the University of Hamburg; Translated by Clarence Loeb, A. M., M. D., Oculist of the Michael Reese Hospital, and Head of the Department of Ophthalmology of the Michael Reese Dispensary, Chicago, Ill.; The C. V. Mosby Co., St. Louis; 1925; $3.50.

The purpose of this book of 193 pages is to give a ready survey of methods of treatment, and list of remedies which may be used in diseases of the eye.

Nonspecific protein, tuberculin, massage, light and electric therapy are given in considerable detail. Many remedies are mentioned which are not commonly used in America. The reviewer recommends the book especially to those doing eye work.

The Surgery of Pulmonary Tuberculosis. By John Alexander, B. S., M. A., M. D., Assistant Professor of Surgery in the Medical School, University of Michigan; formerly assistant to the Professor of Clinical Surgery, University of Pennsylvania; formerly member of Surgical Staffs of Hopital Militaire, v. r, 76, Ris-Orangis, France, and U.S.A. Base Hospital No. 115, A. E. F., Vichy, France; Member American Association for Thoracic Surgery, etc.; With introductions by Hugh Cabot, M. D., C. M., G. LL. D., F. A. C. S., Professor of Surgery and Dean

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of the Medical School, University of Michigan, and Edward R. Baldwin, M. A., M. D., Director of the Trudeau Foundation and Trudeau School of Tuberculosis and the Saranac Laboratory for the study of Tuberculosis. In compliance with directions in the will of Samuel D. Gross, M. D. (1805-1884), announcement is hereby made on the title page that this monograph has been awarded the 1925 quinquennial Samuel D. Gross Prize by the Philadelphia Academy of Surgery. Lea & Febiger, Philadelphia and New York, 1925.

We American physicians have been so thoroughly drilled in the idea that surgery has no part in the treatment of pulmonary tuberculosis that we have been asleep at the switch. European surgeons have been attacking pulmonary tuberculosis and are making progress. I have come to the above conclusions since reading Alexander's book.

This is a book of 365 pages. There are 500 reference in the bibliography, largely from the foreign literature. The author describes the various operations upon the chest, especially the types of thoracoplasty. Open intrapleural pneumolysis is contrasted with closed intrapleural pneumonlysis. Artificial pneumothorax is compared with thoracoplasty. Phrenicotomy is discussed at length. All phases of the subject are handled in a masterly manner. To give some idea of what has been accomplished I quote the following: "Collected for this volume are 1159 cases of far advanced tuberculosis which were treated by paravertebral thoracoplasty. Of these, 36.8 percent were cured and 24.4 percent were improved, a total favorable result fo 61.2 percent. These figures however, are by no means indicative of the results of which surgery is capable. A large majority of all patients operated upon to date were in far advanced stages of the disease with cavity formations and had exhausted

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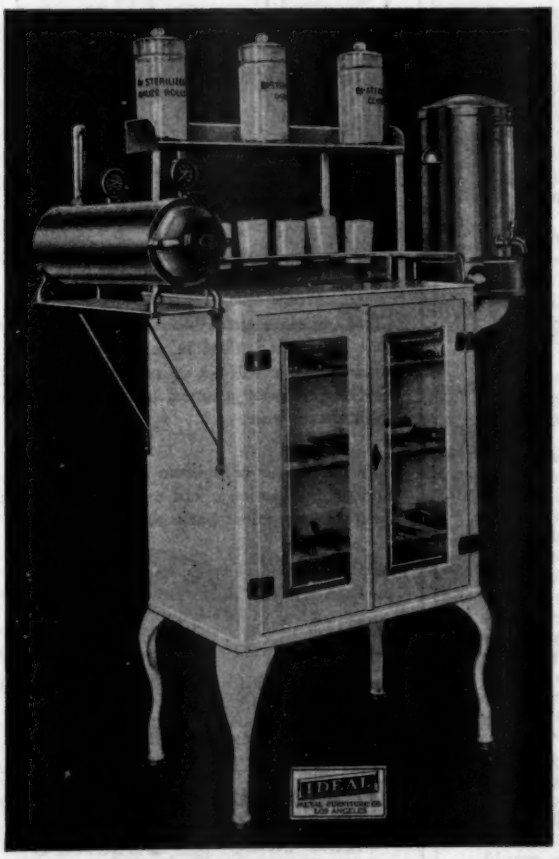

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all other methods of recognized treatment, including artificial pneumothorax. Almost all would have died of tuberculosis had not an operation been undertaken."

The above statements being true, and there is no reason to doubt them, the American phthisiotherapist and the American surgeon need to put their heads together and do something in this comparatively new and promising field. Nearly every physician outside of the strict specialists, treats tuberculosis, hence this book should have a broad appeal.

A Clinical Guide to Bedside Examination. By Dr. H. Elias, Dozent and Assistant at the first Medical Clinic of the University of Vienna, Austria; Dr. N. Jagic, Extraordinary Professor and Chief Physician to the Sofienspital, Vienna, Austria; and Dr. A. Luger, Dozent and Assistant at the second Medical Clinic of the University of Vienna, Austria; arranged and translated by Wm. A. Brams, M. D., Chicago, Ill., Adjunct in Medicine, Michael Reese Hospital, formerly Lieutenant Commander, Medical Corps, United States Navy; Rebman Company, New York; 1923.

This is a small volume of 135 pages, prepared to furnish physicians and students a guide for physical examinations of patients.

It is a law of nature for individuals as well as for iron to grow rusty, unless precautions are taken. This little book is designed to help keep the essentials of a proper physical examination in mind. Any physician can profit by a frequent perusal of it.

Submucous Endocapsular Tonsil Enucleations—with discussion of the evolution of knowledge of the tonsil as a disease producing factor and various methods of enucleation; excerpts from clinics of Charles Conrad Miller, M. D.; The Oak Press, Chicago; 1925.

The author and the publisher both have original ideas, it would seem. The first page to bear printing has only the four words of the title of the book. On the other side of the sheet is the table of contents without page numbers. The next page has an advertisement of a book on Cosmetic Surgery, published by F. H. Davis Co. On the other side of the page we find that Cosmetic Surgery was written by Charles Conrad Miller, M. D. Next comes the regular title page of the book. Next three pages are devoted to "Objections of Submucous Endocapsular Tonsil Enucleations." Then comes the usual preface. There is no index. There is also no listing of illustrations, of which there are a number.

The author's chief contention is for an enucleation of the tonsil endocapsularly. We quote: "This technic includes removal of tonsillar lymphoid and reticular tissue leaving the mucous membrane coverings of the anterior aspect of the tonsil and the base membrane upon which the porencyma of the tonsil rests. The base membrane is not removed or punctured by the needle used in injecting anesthesing solutions."

There is one very interesting chapter of historical review of tonsil operations. There is another interesting historical review chapter on the development of our early knowledge of bacteria. Had the author limited himself strictly to the subject matter which rightfully comes under his title he would have had a relatively thin volume, and probably a better one.

The author claims a number of advantages for his operation among them being, protection against infection, avoidance of injury to musculature, lessening of danger of hemorrhage, preventing change in voice, etc. Those more experienced than the reviewer must decide as to the virtue of Miller's contentions. The author at least is courageous in his criticisms of other operaters.

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ARIZONA STATE MEDICAL ASSOCIATION

Minutes of the Special Session of the House of Delegates, Held July 16, 1926.

A special session of the House of Delegates was called by Acting President Dr. Charles S. Vivian (First Vice President), to be held in Phoenix, Friday evening, July 16th. This special meeting was called by Dr. Vivian, in the absence from the state of Dr. George Bridge, president. The request for the call was signed by the following delegates:

Dr. T. R. White Mohave county; Drs. W. V. Whitmore, B. L. Wyatt, Meade Clyne and I. E. Huffman, Pima county; Drs. H. D. Ketherside and George Shields, Yuma county; Drs. John W. Flinn, H. T. Southworth and C. E. Yount, Yavapai county; Dr. W. C. Todt, councilor.

(The constitution provides that a special session of the House of Delegates shall be called upon written petition of seven delegates.)

The special session convened in the Masonic Temple auditorium, at 8 p. m., July 16th, with the following delegates present:

Yavapai county: Drs. H. T. Southworth and R. H. Thigpen.

Mohave county: Dr. W. C. Todt, councilor.

Gila county: Drs. John E. Bacon, Clarence Gunter and C. W. Adams.

Cochise county: Dr. N. C. Bledsoe.

Maricopa county: Drs. H. B. Gudgel, R. J. Stroud,

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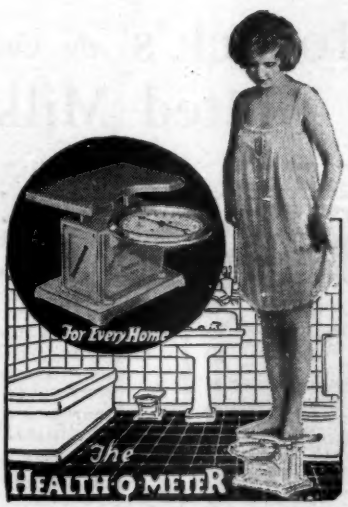

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F. J. Milloy, Victor Randolph, W. W. Watkins, councilor, H. L. Goss, Ancil Martin, Win Wylie.

Dr. Chas. Vivian, vice-president and acting president presided and Dr. Warner Watkins was elected secretary protem, in the absence from the state of Dr. D. F. Harbridge, secretary.

Dr. Vivian stated as the object of the meeting, the consideration of the medical and surgical fee schedule issued by the Arizona Industrial Commission, regarding which there had been much dissatisfaction expressed by most of the county societies of the state.

Dr. Watkins presented a prepared statement, outlining objections which might be made to the proposed fee schedule when it was compared with the Utah schedule; also calling attention to the fact that the commission had virtually agreed, at a former conference with a large group of doctors, to adopt the Utah schedule. It was definitely proposed in this outline of objections to request the commission to adopt the Utah schedule, wherever the two schedules are different.

Objection was taken to this proposal by several delegates, especially those from Yavapai county, on the ground that the medical men are justified in asking for the payment of their usual fees. Upon motion of Dr. Southworth, seconded by Dr. Todt, the following paragraphs of the document presented by Dr. Watkins were adopted by the House Delegates:

"The fees ordinarily charged by the physicians and surgeons of Arizona in their varous communities, for the treatment and management of injuries sustained by persons of like standards of living as working men and women, are entirely reasonable and nowhere can be regarded as exorbitant.

"In section 58-b, of the Workmen's Compensation Act, it is provided that ' all fees and charges for such accident benefits . . . . . shall be limited to such charges as prevail in the same community for similar treatment of injured persons of like standard of living.'

"We believe it is the intent of this section that the physicians and surgeons treating injured workmen shall be paid the fees prevailing in their respective communities for similar treatment given to persons of like standard of living, when treated as private patients.

"We wish to call the attention of the Industrial Comission to the fact that if we are asked to treat injured workmen for fees radically lower than those charged in private practice, the natural inference in the minds of those private patients and the public in general will be that the usual fees are regarded by this commission as too high, and the medical profession will be placed in the embarrassing position of having two sets of fees for the same class of patients, frequently treated side by side in the same hospital, or else will be forced to lower the entire schedule of fees to the figures set by the Industrial Commission."

After considerable further discussion which disclosed the unwillingness of the House of Delegates to agree to the Utah schedule without revisions, upon motion of Dr. H. T. Southworth, seconded by Dr. H. B. Gudgel, the following was adopted:

"The Arizona State Medical Association, through its House of Delegates, called in special session, further respectfully suggests to the Arizona Industrial Commission that a permanent conference committee from the membership of the Association be selected by the House of Delegates. This conference committee to be authorized to represent the medical profession of the state in conferences with the Industrial Commission, whenever the Commission desires to have the advice of the medical profession. That the Industrial Commission submit to this committee and through them to the med-

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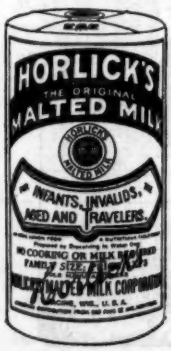

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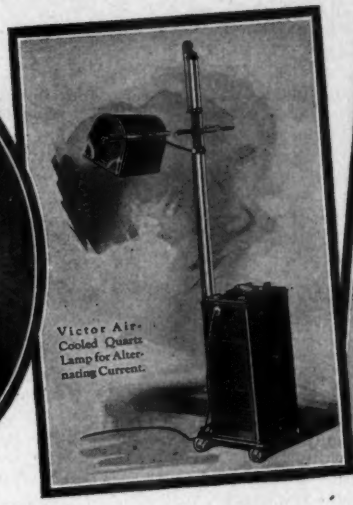

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ical profession of the state, a revised fee schedule and such revisions in the schedule or rules as may from time to time be proposed. The committee will confer and advise with the commission, without remuneration, upon matters affecting the medical or surgical work, regarding which the commission may be in doubt."

Dr. Bacon made motion, second by Dr. Wylie, that the committee be appointed by the president, consisting of five members from the membership of the Association.

Dr. Vivian appointed the following committee:
Dr. H. T. Southworth, Prescott, chairman.
Dr. Clarence Gunter, Globe.
Dr. H. B. Gudgel, Phoenix.
Dr. George E. Shields, Yuma.
Dr. W. Warner Watkins, Phoenix, secretary.

Several motions were made, referring to the work of the committee, but none were passed, and it was finally ruled by the chair that, in the absence of instructions, the work of the committee would be governed by the statement already adopted, referring to this committee. It was decided, informally, that this committee would meet and confer with the commission, at the appointed time, ten o'clock a. m., July 17th.

Motion was made, seconded and adopted, that the necessary expenses if the committee, in carrying out its work, should be paid out of the general fund of the Association.

Motion was also made, seconded and approved, that the expenses incurred by the acting president, in connection with this emergency of the fee schedule, should be paid out of the general fund.

There being no further business, the House of Delegates adjourned the special session, sine die.

W. W. WATKINS,
Secretary, protem.

Primary Carcinoma of the Lung; a Clinical and Pathological Study from the Cook County Hospital, with a Report of 21 Necropsies and 3 Biopsies. By J. S. Grove, M. D., Clinical Assistant in Surgery, Northwestern University Med. Sch., Chicago, and S. E. Kramer, M. D., Perth Amboy, N. J.

This is still spoken of as a rare lesion, though statistics show it to be relatively common. The authors report 21 cases found at necropsy and three proven by biopsy. The involvement may be (1) infiltrating, (2) multiple nodular, (3) solitary nodular, (4) miliray, and (5) mixed. In eight of the cases cited, involvement was confined to a single lobe, while it extended into all lobes of one lung in three. In two cases, there was a single nodule deeply buried in the tissues of the lung surrounded by a few miliary nodules.

The consensus of opinion is that the majority of these tumors arise from the bronchial epithelium, and only a few from the parenchymal or alveolar epithelium.

One of the prime requisites to diagnosis is to keep in mind the possible presence of the lesion. In a patient of middle age or past, with unilateral findings of an area of dulness or flatness, associated with decreased or absent breath sounds, with pain in the chest, with or without dyspnea, one should suspect neoplasm. X-ray may or may not be of value in diagnosis, depending on the conditions in the chest. If there is fluid or associated inflammatory lesions, the shadows may not be characteristic. In three of this series, diagnosis was made by x-ray. The conditions most confusing are interlobar effusions, encysted empyemas, pneumoconiosis, bronchiectasis, lobar pneumonia and mediastinal newgrowths.

Deep roentgen ray and radium treatments have been used but with little benefit in treatment.

Case reports are given of the twenty-four cases.

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PROFESSIONAL NEWS ITEMS

ST. JOSEPH'S HOSPITAL, Phoenix has nearly completed the new administration unit which will also supply about twenty additional rooms for private patients. The new unit is three stories high and will have the main elevator shaft as well as the administrative offices and record rooms.

DR. AND MRS. WILLARD SMITH, Phoenix, have returned from their circumnavigation of the United States. Friends of the doctir will be glad to know that a troublesome skin condition at the location of an old x-ray burn which was hindering his surgical work decidedly, has entirely cleared up and he will be able to resume his work at the surgical table.

DR. AND MRS. H. T. BAILEY, Phoenix, have returned from Europe, where they spent the summer. The doctor spent many profitable weeks in the eye, ear, nose and throat clinics of the continent and has resumed his work in these specialties in Phoenix.

DR. WM. A. SCHWARTZ, Phoenix, was called home by the illness of Dr. Ancil Martin, the first of August. Dr. Schwartz, who has been associated in partnership with Dr. Martin for a number of years and has been doing a major portion of the active work, will continue the work in the same offices. DR. B. L. MELTON, who was assistant to Drs. Martin and Schwartz, will continue this association with Dr. Schwartz.

DR. HARRY R. CARSON, Phoenix, who recently returned from a six weeks postgraduate study in and around Chicago, will practice pediatrics during his afternoon office period. His forenoons are occupied with his anesthesia work.

DR. GEORGE A. BRIDGE, Bisbee, who has spent the summer in Europe, is reported to have returned home.

DR. AND MRS. JOHN WIX THOMAS, Phoenix, are spending the month of September in Los Angeles, visiting relatives and friends. They motored over.

DR. WESLEY M. THOMAS, of Chicago, a brother of Dr. John Wix Thomas of Phoenix, with Mrs. Thomas and daughter, were visitors in Phoenix the early part of September, going on to the coast to visit relatives there.

DR. N. E. MATTOX, of Lead, S. D., was a visitor in Phoenix during the first half of September.

DR. AND MRS. HARLAN P. MILLS, of Phoenix, left the last of August for a motor trip through the northwest, and will return about October 1st.

DR. AND MRS. W. W. WILKINSON, Phoenix, have returned from a long motor trip through the northwest country.

DR. AND MRS. D. F. HARBRIDGE and son, Phoenix, have returned from an extensive motor trip through the east. The doctor procured a new Nash car in Milwaukee and continued the trip through Ohio, West Virginia, Virginia, Pennsylvania and then the return trip, west, a total of nearly 8000 miles. He claims to have visited Philadelphia and the University of Pennsylvania.

ST. JOSEPH'S HOSPITAL STAFF, Phoenix, resumed their monthly staff meeting this month (September) and will meet on the second Saturday of the month regularly.

DR. P. G. CORNISH, JR., of Albuquerque, recently won the state golf championship of New Mexico. It seems to require a surgical eye and muscle to win golf championships.

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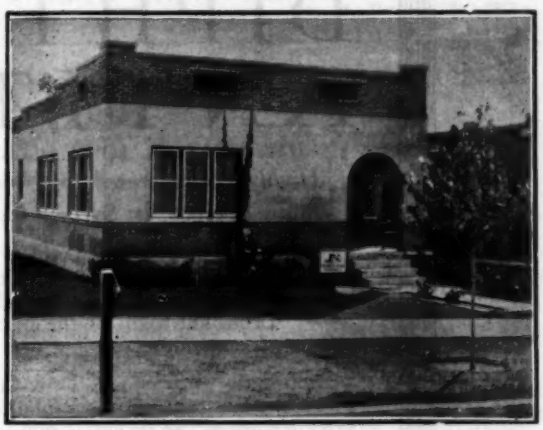

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